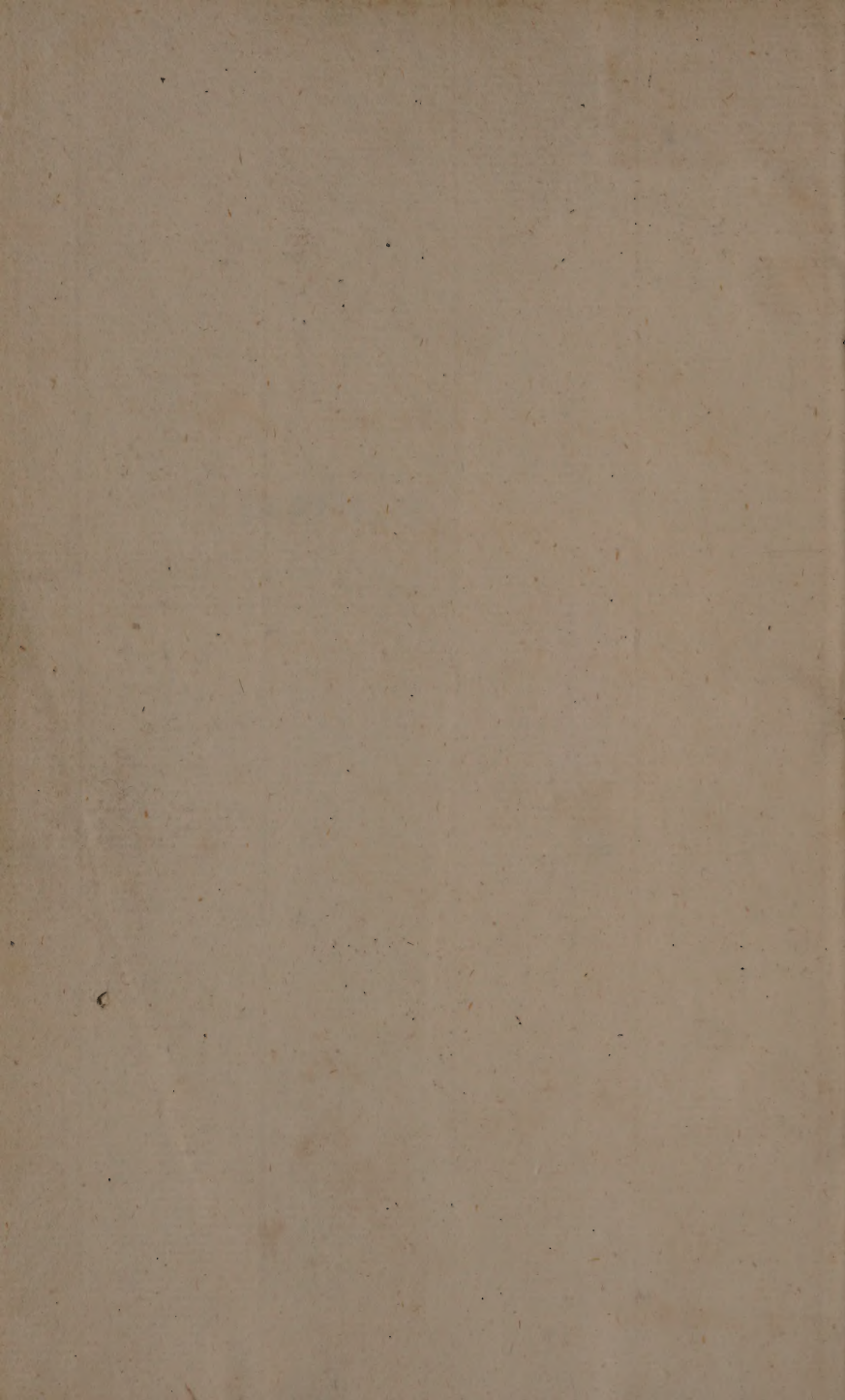




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T H E

General Magazine

O F

ARTS and SCIENCES.

CONTAINING,

- IV. Institutes of Arithmetic, Algebra, Fluxions, Geometry, and Mechanics.
- V. *Biographia Philosophica*, or the Lives of all eminent Natural Philosophers, and Mathematicians.
- VI. *Miscellaneous Correspondence*. Consisting of Mathematics, Essays, Poetry, Memoirs, &c.

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V O L. II.

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INSTITUTIONS

O F

ARITHMETIC.

The Introduction.

I.  **M**ATHEMATICS is the Science or Doctrine of *Quantity*, whose various Relations and Affections it contemplates, and gives Rules for making an *Estimate*, or *Computation* thereof; which it expresses in different Ways, and by various kinds of Symbols or Characters, which is called *Notation*.

2. *Quantity* is every thing which we can conceive to have any Magnitude or Parts, or, properly speaking, it is any thing concerning which we can ask the Question, *how much?* Or, *how great?* It is often distinguished into *continued* and *discrete*.

3. *Continued Quantity* is that whose Parts are all contiguous, or adhere together, and make but *one Whole*, as a *Shilling*, a *Stone*, a *Sheep*, &c. this is the Subject of that Part of *Mathesis* which is called *Geometry*.

4. *Discrete Quantity* is that whose Parts are not contiguous, but separate from each other, and make what Logicians call a *collective Idea*, or *Whole*; thus *one Pound* consists of 20 *Shillings*; a *Flock* of many *Sheep*, &c. this is the Subject of the other Part of *Mathesis* called *Arithmetic*.

5. Notation is of three Kinds, *viz.* *Numerical*, *Specious* and *Linear*; *Numerical Notation* is the Representation of Quantity or Quantities by those Characters we call *Numbers* or *Digits*, which are in all Ten, *viz.* 0, Cypher; 1, One; 2, Two; 3, Three; 4, Four; 5, Five; 6, Six; 7, Seven; 8, Eight; 9, Nine. These are used in common Arithmetic.

6. *Specious Notation*, is that wherein *Species*, or *Letters* are made use of to represent Quantities, as the Letters of the Alphabet, *a, b, c*, or *A, B, C*, &c. as in *Algebra*. Or the same Letters with Points over them, thus, $\dot{x}, \dot{y}, \dot{z}$, in that Part of the Science called *Fluxions*.

7. *Linear Notation*, is the Representation of Quantities by *Lines*, and *Figures* composed of *Lines*, as is done in all the Parts of common *Geometry*.

8. The Quantities considered in *Arithmetic* are called *Numbers*, of which there are two Sorts, *whole* and *broken*, which are otherwise called *Integers* and *Fractions*. The least whole Number is *Unity*, or 1 One; that is, any *one Thing* is called an *Unite*; and *Nothing*, or *Nullity* is represented by the Cypher 0.

9. A Number of Units under Ten, is represented by a single Digit, as 2, 5, 7, &c. but *ten Units* are designed by the first Digit 1, with a Cypher annexed to the right Hand, thus, 10. And as an Unit is made Ten by one Cypher annexed, so it is made *Ten times Ten*, or an *Hundred*, by two annexed Cyphers, viz. 100; so another Cypher makes *Ten Hundred*, or *One Thousand*, viz. 1000, and so on as in the following Table.

1	Unit
10	Ten
100	Hundred
1000	Thousand
10000	Ten Thousands
100000	Hundred Thousands
1000000	Million
10000000	Ten Millions
100000000	Hundred Millions
1000000000	Thousand Millions.

10. If the Number consists not of even Tens, then such a Digit is annexed to the Unit as will express the said Number; thus Seventeen is expressed by 17. Also *twice Ten*, or *Twenty*, is expressed by the Figure 2 and a Cypher, thus, 20; and *Thirty* by 30; *Forty* by 40; and so on to an Hundred. The intermediate Numbers are also expressed by annexing proper Digits in the Place of the Cypher; thus 25 is Twenty-five; 37 Thirty-seven, &c.

II. From hence we obtain the Method of *Enumeration*, or expressing the Number of Quantities contained in any given *Sum*, as shewn below.

NUMERATION TABLE.

Hundred of Millions	9	8	7	6	5	4	3	2	1	Units	1	One
Tens of Millions	8	7	6	5	4	3	2	1	Tens	2	1	Twenty-one
Millions	7	6	5	4	3	2	1	Hundreds	3	2	1	Three Hundred, Twenty-one
Hund. of Thouf.	6	5	4	3	2	1	Thousands	4	3	2	1	4 Thousand, 3 Hundred, 21
Tens of Thouf.	5	4	3	2	1	6 Hundred, 54 Thousand, 3 Hundred 21						
	4	3	2	1	Seven Million, 654 Thousand, 321							
	3	2	1	87 Million, 654 Thousand, 321								
	2	1	987 Million, 654 Thousand, 321.									

Here it is plain, that in order to numerate the Figures in any Sum, you have only need to mention first each Figure, and then the Place in which it stands, according to its Name of Valuation in the Table, in the same Manner as you see done for each Sum, or Line of Figures in the Table on the Right-hand Side. Thus for Instance, the Sum 850943 you read or value thus, 8 Hundred, 50 Thousand, 9 Hundred, 43; or thus at twice, 850 Thousand, 943; and so the Sum 406528035 is thus read, 406 Million, 528 Thousand, 35; and so of others.

12. As an Unit may have its Value encreased ten Times, by annexing a Cypher to the Right-hand, so its Value is diminished in a *ten-fold Proportion* by prefixing Cyphers thereto; thus

	0,1	is one Tenth	} of an Unit.
	0,01	is one Hundreth	
	0,001	is one Thousandth	
Thus also	0,7	is Seven Tenths	} of an Unit.
	0,53	is Fifty-three Hundredths	
	0,375	is Three Hundred Seventy-five Thousandths	

13. In this Case, the Cypher on the Left-hand, cut off with a Comma(,) stands in the Unit's Place, and shews the Number does not amount to Unity, but is a certain Number of such Parts as the Unit contains 10, or 100, or 1000, &c. and these Parts are

expressed by the Figures on the Right-hand of the Comma. This kind of Notation of the Parts of a broken or divided Unit is called *Decimal*, (from *Decem*, Ten) and those Parts of Unity are called *Decimal Numbers* or *Decimal Fractions*.

14. Sometimes a Number consists of *Integers* and *Decimals* together, and is then called a *mix'd Number*; thus 7,3 is Seven and three Tenths; 84,53 is Eighty-four and Fifty-three hundredth Parts of another; and so of others. That Part of the Science which treats of these Numbers is called *Decimal Arithmetic*.

15. If Unity be divided in any other than a *ten-fold Proportion*, then another Species of Computation will ensue; thus in Astronomy we divide a Degree into 60 equal Parts or Minutes; these Minutes are each divided into 60 *Seconds*; each Second into 60 *Thirds*; and so on to *Fourth*s, *Fifth*s, &c. And they are thus denoted, viz. $35^{\circ} : 47' : 31'' : 23'''$; *Thirty-five Degrees, Forty-seven Minutes, Thirty-one Seconds, Twenty-three Thirds*. The Rules for managing these Numbers is called *Sexagenary* or *Sexagesimal Arithmetic*.

16. It frequently happens that we are obliged to divide an Unit indefinitely, or into any Number of Parts as Occasion requires for comparing a Part with the whole Unit, in Parts of such a Division: In this Case, the Way to express such a Fraction, is to place the Unit divided into its whole Number of Parts, below a Line, and the Parts of the Unit which are given, above it; thus $\frac{3}{4}$ is three Parts of such as the Unit contains Four of; and $\frac{5}{13}$ is five Thirteenths of the whole Unit. These are called *Vulgar Fractions*.

17. A *Vulgar Fraction* is said to be *pure*, when it consists only of fractional Parts, as $\frac{1}{2}$, $\frac{1}{4}$, $\frac{2}{3}$, &c. and *mixed*, when joined with Integers, as $5\frac{1}{2}$, $23\frac{4}{9}$, $1\frac{16}{75}$, &c.

18. The Number placed below the Line, is called the *Denominator* of the Fraction, because it denominates the Fraction, or Number of Parts into which Unity is broken or divided; and the Number above the Line is called the *Numerator*, because it enumerates or shews how many of those Parts make the Fraction proposed.

19. The Fraction is said to be *proper*, when the Numerator is less than the Denominator, as $\frac{3}{4}$; but *improper*, when the Contrary happens; as $\frac{4}{3}$, $\frac{13}{9}$, &c.

20. When

20. When any two Quantities are compared together, to observe the Relation of their *Magnitude*, such Comparifon is called a *Ratio*; and is thus expreffed, $a : b$; of this Ratio, the first Term (a) is called the *Antecedent*, and the latter (b), the *Consequent*.

21 When any two Quantities have the fame Ratio with any other two, it is denoted by this Character ::, thus $a : b :: c : d$; the Quantity (a) is to (b) as (c) is to (d); which are therefore faid to be *analogous* or *proportionate*; and fuch a Comparifon, or Expref-
fion, is call'd *Analogy* or *Proportion*.

22. When any Calculation is to be made, it is done either by *Addition*, *Subtraction*, *Multiplication* or *Division* of Quantities; which four fundamental Rules are called the *Algorithm* of Quanti-
ties, and which we now proceed to explain.

Characters for Abbreviation explained,

viz. $\left\{ \begin{array}{l} + \\ - \\ \times \\ \div \\ = \end{array} \right\}$ signifies $\left\{ \begin{array}{l} \text{More; as } 3+4, \text{ is } 3 \text{ added to } 4 \\ \text{Lefs; as } 4-3, \text{ is } 3 \text{ taken from } 4 \\ \text{Multiplied by; as } 3 \times 4, \text{ is } 3 \text{ multiplied by } 4 \\ \text{Divided by; as } 3 \div 4, \text{ is } 3 \text{ divided by } 4, \text{ or } \frac{3}{4} \\ \text{Equal to; as } a=4, \text{ is } a \text{ equal to } 4. \end{array} \right.$

CHAPTER I.

ADDITION OF INTEGERS, OR WHOLE NUMBERS.

23. **A**DDITION of Numbers confifts in adding together all the Units contained in feveral particular Numbers, properly difpofed, into one *Sum*, *Aggregate*, or *Total*, expreffing the Value of all together. And this is performed in the following Manner, viz.

24. Let the feveral particular Sums, or Numbers, be difpofed one under another, in fuch a Manner, that the Place of Units, Tens, Hundreds, &c. in each, may conftitute a perpendicular Column of Figures; thus, let it be required to add together the Numbers 57, 762, 5389, 97615; in order to do this they muft firft be difpofed thus,

$$\begin{array}{r} 57 \\ 762 \\ 5389 \\ 97615 \\ \hline \end{array}$$

25. The

25 The Numbers placed, as above, you proceed to add together by the following

R U L E,

Reckon up all the Digits in the first, or Right-hand, Column, and observe, for every Ten to carry One to the Place of Tens in the second Column, setting down the remaining Digits under the first Column of Units: Thus, $5+9+2+7=23$, which is thus expressed, five more nine is fourteen, and two is sixteen, and seven is twenty-three or 23, in which Sum there are two Tens and 3 over; you must then set down the 3 and carry Two to the next Place of Tens, and proceed as before; thus, $2+1+8+6+5=22$; here again are two Tens, and Two over to be set down under the second Column; then carrying the Two to the third Column of Hundreds, you say again, $2+6+3+7=18$; here is but one Ten, and 8 to be set down; then carrying One to the next Column, say $1+7+5=13$; here again is one Ten, and 3 to be set down; lastly, carry One to the last Place, and say $1+9=10$, which Number, be it what it will, is always set down, and the Sum total is compleat in one Number, as in the Examples.

57	6475
762	9830
5389	2764
97615	5937
<hr/>	<hr/>
103823	25006
<hr/>	<hr/>

26. The Reason why you carry *Ten* from every Column to the next, is because the Value of the Figures in each Column encreases in a ten-fold Proportion, as is evident from Article 9; and the Digits set down under each Column are *Units, Tens, Hundreds, Thousands, &c.* according to Inst. 11. which will express the Value of all the Columns severally collected and added together. Thus in the first Example, the Sums of each Column will stand thus, *viz.*

23	Column of Tens
200	_____ of Hundreds
1600	_____ of Thousands
12000	_____ of Ten Thousands
90000	_____ of Hundred Thousands.
<hr/>	
103823	= Total Value.

27. More

27. More Examples of Addition are the following:

5729	5009	847593
43605	120	215475
9834	369	176843
30546	1298	467890
75102	57306	150362
164816	64102	1858163

28. In the Addition of several Sums of *Money, Measure, Weight, &c.* you observe one general Rule, *viz. to collect all the Units of one Species together; and then for every Number of those Units, which make one of the next Species, you add One to the next Column, setting down the Remainder, as above.* In Money the Species are thus denoted,

$$\text{viz. } \left\{ \begin{array}{l} f. \\ d. \\ s. \\ L. \end{array} \right\} \text{ for } \left\{ \begin{array}{l} \text{Farthings} \\ \text{Pence} \\ \text{Shillings} \\ \text{Pounds} \end{array} \right\} \text{ of which } \left\{ \begin{array}{l} 4 = 1 \text{ Penny.} \\ 12 = 1 \text{ Shilling.} \\ 20 = 1 \text{ Pound.} \end{array} \right.$$

Thus in the following Example, for every 4 Farthings you carry one Penny to the Column of Pence; for every 12 Pence you carry One to the Column of Shillings, and from thence, for every Twenty, you carry one to the Place of Pounds; which are added as the Integers in Inf. 27.

Example.

l.	s.	d.	f.
37	12	9	3
125	7	10	2
750	16	7	1

Total £. 913 17 3 2

29. I shall here subjoin several Sums to be added for the Learner's Practice.

l.	s.	d.	f.		l.	s.	d.	f.
175	19	6	2		3758	17	11	2
386	18	10	3		279	16	10	3
57	19	4	1		46	8	9	1
6	12	5	2		8	19	7	2

	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>f.</i>		<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>f.</i>
					1000	16	10	2	
	10	16	10	2	100	10	11	3	
175	18	9	0		90	2	3	2	
37	14	11	2		10	12	10	1	
956	16	10	1		9	17	5	1	
47	19	9	3		0	17	4	0	

30. Of *Weights* we have several Sorts, *viz.*

I. TROY WEIGHT.

In which { 24 Grains (*Gr.*) make 1 Penny Weight.
 20 Penny Wts. (*Pwt.*) 1 Ounce.
 12 Ounces (*oz.*) — 1 Pound. (*lb.*)

31. II. APOTHECARIES WEIGHT.

In which { 20 Grains (*Gr.*) make 1 Scruple.
 3 Scruples (\mathfrak{D}) — 1 Dram.
 8 Drams (\mathfrak{z}) — 1 Ounce.
 12 Ounces (\mathfrak{Z}) — — 1 Pound (*lb.*)

32. III. AVOIRDUPOIS WEIGHT.

In which { 16 Drams (*Drs.*) make 1 Ounce.
 16 Ounces (*Oz.*) — 1 Pound.
 28 Pounds (*lb.*) — — 1 Quarter of an Hundred.
 4 Quarters (\mathcal{Q} rs.) — 1 Hundred Weight.
 20 Hundred (*C.*) — 1 Ton.

33. In each of these Species the Learner may exercise himself by the following Examples, *viz.*

In Troy Weight.

<i>lb.</i>	<i>Oz.</i>	<i>Pwt.</i>	<i>Gr.</i>
21	11	17	21
20	9	15	7
8	4	3	23
19	10	19	18

In Apothecaries Weight.

lb.	3.	3.	9.	Grs.
18	10	7	2	16
9	11	5	0	10
16	9	4	1	10
3	5	6	2	15
25	9	0	1	6

In Avoirdupois Weight.

T.	C.	Qrs.	lb.	Oz.	Drs.
175	17	3	25	14	13
90	10	2	17	10	12
105	18	1	11	9	4
19	19	0	27	15	3
195	17	1	14	9	10
74	10	3	8	12	9

In Long Measure.

34. Our MEASURES are of divers Sorts; the Measures of Length are of the following species.
- | | |
|---|--|
| { | <p>3 Barley Corns make 1 Inch.</p> <p>12 Inches — — — 1 Foot.</p> <p>3 Feet — — — 1 Yard.</p> <p>5½ Yards — — — 1 Rod.</p> <p>40 Rods — — — 1 Furlong.</p> <p>8 Furlongs — — — 1 Mile.</p> |
|---|--|

35. Our CORN MEASURES are the following.
- | | |
|---|--|
| { | <p>2 Gallons make 1 Peck.</p> <p>4 Pecks — 1 Bushel.</p> <p>8 Bushels — 1 Quarter.</p> <p>5 Quarters — 1 Load.</p> |
|---|--|

36. Our LIQUID MEASURES are of the following Species, viz.
- | | |
|---|---|
| { | <p>8 Pints make 1 Gallon.</p> <p>9 Gallons — 1 Firkin of Beer.</p> <p>8 Gallons — Ditto of Ale.</p> <p>2 Firkins — 1 Kilderkin.</p> <p>2 Kilderkins — 1 Barrel.</p> <p>2 Barrels — 1 Hoghead.</p> |
|---|---|

37. But our WINE MEASURE is as follows, viz.
- | | |
|---|--|
| { | <p>8 Pints make 1 Gallon.</p> <p>63 Gallons — 1 Hoghead.</p> <p>2 Hogheads — 1 Pipe or Butt.</p> <p>2 Butts — 1 Tun.</p> |
|---|--|

38. The true original Standard for Measures of Capacity or Solidity, is the CUBIC INCH.

Thus { 282 } { 231 } { 268¾ } Cubic Inches make { 1 Ale Gallon. } { 1 Wine Gallon. } { 1 Corn Gallon. }

Also 1728 Cubic Inches make one Foot Solid.

39. Our Measures of TIME are of the following Denominations, viz.

60 Seconds make 1 Minute.
 60 Minutes — 1 Hour.
 24 Hours — 1 Day.
 7 Days — 1 Week.
 4 Weeks — 1 Month.
 12 Months — 1 Year.

40. A CIRCLE, and also the MOTION performed in a Circle, (especially in respect of the ECLIPTIC in astronomical Affairs) is divided in the following Manner, viz.

60 Seconds make 1 Minute.
 60 Minutes — 1 Degree.
 30 Degrees — 1 Sign.
 12 Signs, or } — The Circle.
 360 Degrees }

In very nice Matters we sub-divide a Second into 60 Thirds; a Third into 60 Fourths, and so on; as mentioned, Inst. 15.

41. I shall subjoin the following Example for Practice.

Long Measure.

M.	F.	Rds.	Yds.	F.	M.	F.	Rds.	Yds.	F.	In.
175	5	36	3	2	195	3	27	3	1	10
19	3	27	5	1	79	7	30	4	0	11
76	7	39	4	0	9	6	29	5	2	9
121	0	20	2	1	17	5	20	4	0	7
54	6	17	4	0	59	4	18	0	1	6

Time.

Y.	M.	W.	D.	H.	Y.	M.	W.	D.	H.	'	"
175	9	3	2	17	143	10	2	5	19	50	37
140	12	1	5	21	74	9	3	6	20	7	57
35	7	0	6	19	3	4	0	3	1	39	10
9	5	2	4	11	19	3	1	2	5	25	41
110	10	1	3	8	158	12	2	0	22	30	8

Motion

Motion.

<i>Rev.</i>	<i>Sg.</i>	<i>Dr.</i>	<i>'</i>	<i>"</i>	<i>Rev.</i>	<i>Sg.</i>	<i>Dr.</i>	<i>'</i>	<i>"</i>
175	10	28	51	42	237	11	22	50	40
74	11	17	41	37	41	10	20	9	30
50	9	21	30	58	17	9	17	17	27
9	8	11	35	53	573	5	9	27	35
5	10	5	10	9	29	8	10	15	42
3	5	13	7	16	17	3	8	16	51

42. The best Way to know if the Sum be cast up right, is to do it twice over, beginning at the Bottom, and reckoning upwards the first Time; and then beginning at the Top, and reckoning downwards the second Time; and if the *Sum Total* in both Cases be the same, the Work is right, otherwise not.

CHAP. II.

SUBTRACTION OF INTEGERS.

43. **S**UBTRACTION is the second Operation in the Art of *Computation*; it consists in finding the Difference between two Numbers, *by taking the Lesser from the Greater*; and as this is the Reverse of Addition, so the Rule of performing it, is the Contrary of that, *viz.*

R U L E.

44. From each Figure in the upper Line (beginning at the Right Hand) take the Figure in the under Line, if it be less, and set down the Difference, but if the Figure or Number in the lower Line exceeds that in the upper One which stands over it, encrease that upper Figure by adding 10, if it be in the Place of Integers; but if it be in any Species of Money, Weight, Measure, &c. you add to it such a Number as makes One of the next Denomination, and then subtract as before, and set down the Difference, and remember, that every Time you thus encrease the upper Figure, you carry one Unit to the next Figure in the lower Line.

45. This Rule will be best illustrated by the following Examples.

<i>From</i>	57238765	695278675
<i>Take</i>	13106243	434865740

<i>Remains</i>	44132522	260412935
----------------	----------	-----------

5729438640
178089305

109765432016
16741320785

Money.

<i>l.</i>	<i>s.</i>	<i>d.</i>
175	17	9
94	13	6

<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>f.</i>
17653	05	11	3
589	17	10	2

81	04	3
----	----	---

17063	08	01	1
-------	----	----	---

<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>f.</i>
9175	17	04	2
1049	19	10	3

<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>f.</i>
3729	17	10	0
3018	17	11	3

Troy Weight.

<i>l.</i>	<i>Oz.</i>	<i>Pwt.</i>	<i>Grs.</i>
131	10	18	14
79	11	19	20

<i>l.</i>	<i>Oz.</i>	<i>Pwt.</i>	<i>Grs.</i>
173	05	00	01
9	10	00	23

Avoirdupois Weight.

<i>T.</i>	<i>C.</i>	<i>Qrs.</i>	<i>lb.</i>	<i>Oz.</i>
35	18	2	24	0
34	19	3	25	9

<i>T.</i>	<i>C.</i>	<i>Qrs.</i>	<i>lb.</i>	<i>Oz.</i>	<i>Drs.</i>
13	00	0	01	00	15
10	17	2	7	09	15

Long Measure.

<i>M.</i>	<i>F.</i>	<i>Rds.</i>	<i>Y.</i>	<i>F.</i>	<i>M.</i>	<i>F.</i>	<i>Rds.</i>	<i>Yds.</i>	<i>F.</i>	<i>In.</i>
173	7	37	4	1	517	6	00	1	2	10
19	7	39	5	0	9	0	00	4	2	11

Motion.

<i>Rev.</i>	<i>Sg.</i>	<i>Dr.</i>		<i>Rev.</i>	<i>Sg.</i>	<i>Dr.</i>			
15	07	20	40	10	9	29	59	00	
14	11	29	50	8	10	29	00	59	

Time.

<i>Y.</i>	<i>M.</i>	<i>W.</i>	<i>D.</i>	<i>H.</i>	<i>Y.</i>	<i>M.</i>	<i>W.</i>	<i>D.</i>	<i>H.</i>	<i>'</i>	<i>"</i>
157	10	0	6	21	125	10	0	0	00	00	01
25	12	2	1	23	124	11	3	6	23	59	09

46. These Examples well understood, all others of every Sort will be easy; and the Reader needs not be told, that the Difference added to the lower Line, or lesser Number, ought to make the Sum in the upper Line, and will, when the Work is right.

CHAP. III.

MULTIPLICATION of INTEGERS.

47. **M**ULTIPLICATION is the *third Operation* in Arithmetic, and is nothing more than a compendious Way of adding any Number or Sum, any Number of Times to its self, Thus if the Number 135 be added 3 Times to its self, the Sum will be the same as the Product of 135 multiplied by 3, as it evident below, viz.

Add

$$\begin{array}{r}
 \text{Add } \left\{ \begin{array}{l} 135 \\ 135 \\ 135 \end{array} \right. \\
 \hline
 \text{Sum } 405
 \end{array}
 \quad
 \begin{array}{r}
 \text{Multiply } 135 \\
 \text{By } 3 \\
 \hline
 \text{Product } 405
 \end{array}$$

48. If the same Number 135 were to be made 13 Times as great, then you make it first, 3 Times as great, *viz.* 405; and after that, 10 Times as great (which is done by annexing a Cypher to the right Hand, *Inst.* 9.) *viz.* 1350, and then the Sum of both these is that required, *viz.*

$$\begin{array}{r}
 \text{The Factors } \left\{ \begin{array}{l} 135 \\ 13 \end{array} \right. \begin{array}{l} \text{The Multiplicand.} \\ \text{The Multiplier.} \end{array} \\
 \hline
 \end{array}$$

1st Sum 405

2d Sum 1350

Total 1755 Product.

49. But that a Person may be ready at investigating these particular Sums, it is absolutely necessary to learn the following Table by heart.

The Multiplication Table.

$$\begin{array}{l}
 3 \text{ Times } \left\{ \begin{array}{l} 3 \text{ is } 9 \\ 4 \quad 12 \\ 5 \quad 15 \\ 6 \quad 18 \\ 7 \quad 21 \\ 8 \quad 24 \\ 9 \quad 27 \end{array} \right.
 \end{array}
 \quad
 \begin{array}{l}
 4 \text{ Times } \left\{ \begin{array}{l} 4 \text{ is } 16 \\ 5 \quad 20 \\ 6 \quad 24 \\ 7 \quad 28 \\ 8 \quad 32 \\ 9 \quad 36 \end{array} \right.
 \end{array}$$

$$\begin{array}{l}
 5 \text{ Times } \left\{ \begin{array}{l} 5 \text{ is } 25 \\ 6 \quad 30 \\ 7 \quad 35 \\ 8 \quad 40 \\ 9 \quad 45 \end{array} \right.
 \end{array}
 \quad
 \begin{array}{l}
 6 \text{ Times } \left\{ \begin{array}{l} 6 \text{ is } 36 \\ 7 \quad 42 \\ 8 \quad 48 \\ 9 \quad 54 \end{array} \right.
 \end{array}$$

$$\begin{array}{l}
 7 \text{ Times } \left\{ \begin{array}{l} 7 \text{ is } 49 \\ 8 \quad 56 \\ 9 \quad 63 \end{array} \right.
 \end{array}
 \quad
 \begin{array}{l}
 8 \text{ Times } \left\{ \begin{array}{l} 8 \text{ is } 64 \\ 9 \quad 72 \end{array} \right. \\
 9 \text{ Times } \left\{ \begin{array}{l} 9 \text{ is } 81 \end{array} \right.
 \end{array}$$

50. By this Table we find the Sum which arises by adding any Digit any Number of Times (under 10) to its self; thus 8 added 7 Times to its self makes 56, and therefore we say, 7 Times 8 is 56; and so of others. The Learner will take Notice, that 7 Times 5 is the same as 5 Times 7, and therefore, it was not necessary to make the Table any larger.

51. Having this Table perfectly in Mind, the Operation will be easy by the following

R U L E.

With the first Figure to the Right Hand, in the Multiplier, begin to multiply each Figure in the Multiplicand, proceeding from the Right to the Left; in the Product of each Figure, set down the Digits under 10, or between the Tens; and for every 10 contained in such Product, carry One to the next Place. In like Manner proceed with every Figure of the Multiplier; and set down the several Products, one under another, in such a Manner that they may stand one Figure backwards, or the first Figure of each Line under the second Figure of that above; then add all into one Sum, which will be the Product, as in the following

Examples.

Mult. 1735	5738	4897
by 4	16	384
6940	34428	19588
	5738	39176
	91808	14691
		1880448

52. The Reason of the last Part of the Rule, viz. setting the several Products one Figure back will easily appear from Inst. 48. Because the Cyphers annexed to each Product are here rejected as making no Alteration in the Value of the Product, when thus reckoned up. Thus, in the last Example, the Multiplicand 4897, being multiplied by 4, 80, 300, successively, makes the Products, 19588, 391760, 1469100, which, added together, make the same Number as before; as is evident below

4897
384

19588

391760

1469100

1880448

{ Here the three Cyphers being rejected, as superfluous, the Rest stands as before.

53. If a Cypher be found in the Multiplier, you place a Cypher under it, or annex it to the first Figure of the next Product; or you set the next Figure two Places back instead of one. Thus 1795 multiplied by 307 will stand

thus; 1795
307

12565

0000

5385

551065

or thus; 1795
307

12565

53850

551065

or thus; 1795
307

12565

5385

551065

The last Way is most compendious, but the 2d is easiest for a Learner, and is generally used; the Reason of both appears from the first Position of the Product; for it is evident the 4 Figures 1795 multiplied by 0, gives 4 Places of Cyphers, which are of no use to set down.

54. I shall here subjoin a Variety of Examples for the Learner's Observation and Exercise, both wrought and unwrought, as follow:

1750
76

10500

12250

133000

7580
520

151600

37900

3941600

80507
3050

4025350

2415210

245546350

756940 10090	705059 1000
68124600 75694000	705059000
7637524600	
579603 10001	1001000 1010
579603 579603000	10010000 10010000
5796609603	1011010000
89704500 605730	900203005 90107004
57986000 18000500	1001000010 10010010

55. The vulgar Method of proving the Truth of the Work, is by adding together the Digits in the Multiplicand and Multiplier, and casting out every *Nine*, as often as it occurs, noting the Remainders; then multiplying the Remainders, and casting the Nines out of the Product, you note the Remainder in that Case: Lastly, the Nines are cast out of the Sum of the Digits in the Product, and if the Remainder, in this Case, be the same with the last mentioned, it is a general Proof that the Work is true. Thus in the first Example of Inst. 54, the two first Remainders are 4 and 4; the Remainder in their Product is 7, which is also the Remainder in the whole Product of the Factors, and shews the Work is right. But the genuine Proof of Multiplication is by *Division*.

56. *Compound Multiplication* is sometimes of Use. This is when the *Multiplicand* consists of different Parts or Species of

D

Measure,

Measure, Weight, Time, Motion, &c. As in the Examples following.

	<i>l.</i>	<i>s.</i>	<i>d.</i>		<i>lb.</i>	<i>oz.</i>	<i>pwt.</i>	<i>gr.</i>		<i>yds.</i>	<i>f.</i>	<i>in.</i>
Mult.	15	7	6 $\frac{1}{2}$		8	11	16	10		40	2	10 $\frac{1}{4}$
By			5					8				12
	<hr/>				<hr/>					<hr/>		
	76	17	8 $\frac{1}{2}$									
	<hr/>				<hr/>					<hr/>		

But when the Multiplier is large, these Operations are much easier by *Decimal Arithmetic*, as will be shewn farther on.

CH A P. IV.

DIVISION of INTEGERS.

57. **B**Y this Operation we find how often the smallest of any two given Numbers is contained in the greater, which is therefore but the Reverse of Multiplication; as for Example, Let it be required to find how often 3 is contained in 405. Then first, 3 is contained in 405, 100 Times, with a Remainder of 105; in this Remainder it is contained 30 Times with another Remainder of 15, in which it is contained 5 Times; therefore in all the Parts of 405, the Number 3 is contained, $100 + 30 + 5 = 135$ Times, as in the Operation below. (See Inst. 47)

<i>Divisor.</i>	<i>Dividend.</i>	<i>Quotient.</i>
3)	405	(100
	300	
	<hr/>	
3)	105	(30
	90	
	<hr/>	
3)	15	(5
	15	
	<hr/>	
	..	135

58. Hence you see the Reason of the compendious Form in the common Operation of this Part of Arithmetic; which therefore is performed by the following

RULE.

R U L E.

If the Divisor be a less Number than so many Figures taken on the Left Hand in the Dividend make, see how often the Former is contained in the latter, and the Figure which expresses it, is the first of the Quotient; then multiply the Divisor by the Quotient Figure, and placing the Product under the said Figure or Figures of the Dividend, subtract it therefrom; and to the Remainder, annex the following Figure of the Dividend, which divide as before; and thus proceed 'till the whole Dividend be exhausted; as the Examples following.

$$3 \overline{) 405} (135$$

$$\begin{array}{r} 3 \\ \hline 10 \\ 9 \\ \hline 15 \\ 15 \\ \hline \dots \end{array}$$

$$8 \overline{) 9769} (1221$$

$$\begin{array}{r} 8 \\ \hline 17 \\ 16 \\ \hline 16 \\ 16 \\ \hline \dots 9 \\ 8 \\ \hline 1 \end{array}$$

$$12 \overline{) 1728} (144$$

$$\begin{array}{r} 12 \\ \hline 52 \\ 48 \\ \hline 48 \\ 48 \\ \hline \dots \end{array}$$

$$135 \overline{) 1755} (13$$

$$\begin{array}{r} 135 \\ \hline 405 \\ 405 \\ \hline \dots \end{array}$$

59. If it happen that the Divisor be a greater Number than so many of the first Figures of the Dividend make, then you take a Number of Places in the Dividend greater by one, and proceed as before, as in the following Examples.

$$D 2$$

$$5 \overline{) 3790} (758$$

$$5 \overline{) 3790} \text{ (758}$$

35

29

25

40

40

..

$$25 \overline{) 127900} \text{ (5116}$$

125

29

25

40

25

150

150

...

60. If in any Case, the Remainder be so small, that when the Figure of the Dividend joined with it, make a Sum less than the Divisor, than a Cypher is to be placed in the Quotient, and another Figure taken down; and then the Division renewed, proceeds as above. Thus

$$9 \overline{) 1863} \text{ (207}$$

18

.. 63

63

..

$$12 \overline{) 250836} \text{ (20903}$$

24

108

108

... 36

36

..

61. If the Divisor be not contained a whole Number of Times in the Dividend precisely, there will be a Remainder, when the Division is finished, which is to be placed Fraction-wise in the Quotient, together with the Divisor, as the Denominator, as in the following Cases.

$$7 \overline{) 673} \text{ (96}$$

63

43

42

1

$$13 \overline{) 12976} \text{ (998}$$

117

127

117

106

104

2

71)

$$\begin{array}{r}
 71 \overline{) 29754} \quad (419 \frac{5}{71} \\
 \underline{284} \\
 135 \\
 \underline{71} \\
 644 \\
 \underline{639} \\
 5
 \end{array}
 \qquad
 \begin{array}{r}
 131 \overline{) 135076} \quad (1031 \frac{15}{131} \\
 \underline{131} \\
 407 \\
 \underline{393} \\
 146 \\
 \underline{131} \\
 15
 \end{array}$$

62. When the Divisor has one or more Cyphers at the Beginning, they may be omitted in the Work, provided you strike off as many Figures in the Beginning of the Dividend, which are to be annexed to the Remainder to compleat it; as will appear in the ensuing Operations.

<i>At Length.</i>	<i>Contracted.</i>
$ \begin{array}{r} 70 \overline{) 5689} \quad (81 \frac{19}{70} \\ \underline{560} \\ 89 \\ \underline{70} \\ 19 \end{array} $	$ \begin{array}{r} 7 0 \overline{) 568 9} \quad (81 \frac{19}{70} \\ \underline{56} \\ 89 \\ \underline{7} \\ 19 \end{array} $
$ \begin{array}{r} 8300 \overline{) 9850716} \quad (1186 \\ \underline{8300} \\ 15507 \\ \underline{8300} \\ 72071 \\ \underline{66400} \\ 56716 \\ \underline{49800} \\ 6916 \end{array} $	$ \begin{array}{r} 83 00 \overline{) 98507 16} \quad (1186 \\ \underline{83} \\ 155 \\ \underline{83} \\ 720 \\ \underline{664} \\ 567 \\ \underline{498} \\ 6916 \end{array} $

63. These are all the Varieties the Learner will meet with in this Operation; and the following Examples will exercise him therein.

175) 89463 (9850) 82768 (

5900) 300012 (15700) 9875830 (

1000) 980005 (60800) 908437200 (

64. To prove the Truth of the Work, multiply the Quotient by the Divisor, and if the Product be the same with the Dividend, the Work is right, otherwise not. Note, if there be any Remainder in the Division, it must be added to the said Product to make the Proof. Thus in the last Example of (61) we have $1031 \times 131 = 135061$, and then the Remainder 15 being added, the Whole makes 135076, the same with the Dividend.

65. And, *vice versa*, the only true Proof of Multiplication is by Division, as will easily appear to any one who understands the preceding Operations. Thus in the first Example of (54) if you divide the Product 133000 by the Multiplier 76, the Quotient will be the Multiplicand 1750, which proves the Work true.

CH A P. V.

Of VULGAR FRACTIONS.

66. **T**O fit Vulgar Fractions for Operation, they should be first of all reduced to their lowest Denomination, which is done by finding a common Divisor by this

R U L E.

Divide the Denominator by the Numerator, and the Numerator by the Remainder (if any) and that first Remainder by the Second, the second by the Third, and so on, till the Remainder be nothing; as in the Instances following, viz. $\frac{15}{81}$, $\frac{31}{137}$.

$$\begin{array}{r}
 15 \overline{) 81} \begin{array}{l} (5 \\ 75 \\ \hline \end{array} \qquad 31 \overline{) 157} \begin{array}{l} (5 \\ 155 \\ \hline \end{array} \\
 \cdot 6 \overline{) 15} \begin{array}{l} (2 \\ 12 \\ \hline \end{array} \qquad \cdot 2 \overline{) 31} \begin{array}{l} (15 \\ 30 \\ \hline \end{array} \\
 3 \overline{) 6} \begin{array}{l} (2 \\ 6 \\ \hline \end{array} \qquad 1 \overline{) 2} \begin{array}{l} (2 \\ 2 \\ \hline \end{array} \\
 \cdot \qquad \qquad \qquad \cdot
 \end{array}$$

67. The last Divisor is the *common Divisor* sought, by which, if the Fraction be divided, it will be reduced to its lowest Terms; thus if the Fraction $\frac{15}{81}$ be divided in each Part by 3, it is reduced to $\frac{5}{27}$, which is equal in Value to the former. And because, in the second Example, the Remainder is Unity, it shews that Fraction is already in its lowest Denomination.

68. *Mix'd Numbers* must be reduced to a fractional Form, which is done by this

R U L E.

Multiply the integral Part by the Denominator of the fractional Part, to which add the Numerator, and the Sum will be a new Numerator; under which write the Denominator, and it makes an improper Fraction of the same Value. As in these Examples, $5\frac{2}{7} = 1\frac{3}{11}$, $28\frac{1}{3}$. Thus $5 \times 7 = 35$, and $35 + 2 = 37$, then $\frac{37}{7} = 5\frac{2}{7}$; also $1 \times 11 = 11$, and $11 + 3 = 14$, then $\frac{14}{11} = 1\frac{3}{11}$; lastly, $28 \times 13 = 364$, and $364 + 1 = 365$, then $\frac{365}{13} = 28\frac{1}{13}$. The Reason of all which appears from common Division (61.)

69. Two or more Fractions are reducible to *one common Denomination*, that is, shall have all the same Denominator, retaining still their first Values, by this general

R U L E.

Multiply the Numerator of each Fraction into all the Denominators, but its own, for a new Numerator, and multiplying all the Denominators together, the Product shall be a common Denominator to all the Numerators before found.

Thus let it be required to reduce $\frac{2}{3}$, $\frac{7}{13}$, $\frac{17}{73}$, to one common Denomination, the Work will stand as below.

$\begin{array}{r} 2 \\ 13 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 17 \\ 13 \\ \hline \end{array}$	$\begin{array}{r} 73 \\ 13 \\ \hline \end{array}$
$\begin{array}{r} 26 \\ 73 \\ \hline \end{array}$	$\begin{array}{r} 35 \\ 73 \\ \hline \end{array}$	$\begin{array}{r} 51 \\ 17 \\ \hline \end{array}$	$\begin{array}{r} 219 \\ 73 \\ \hline \end{array}$
$\begin{array}{r} 78 \\ 182 \\ \hline \end{array}$	$\begin{array}{r} 105 \\ 245 \\ \hline \end{array}$	$\begin{array}{r} 221 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 949 \\ 5 \\ \hline \end{array}$
1898	2555	1105	4745

Then the Fractions become $\frac{1898}{4745}$, $\frac{2555}{4745}$, $\frac{1105}{4745}$, all of the same Value as before.

70. This previous Reduction of Fractions to a common Denominator, renders them easy to be added, or subtracted; for this is done among the Numerators only of the Fractions thus reduced; for Example, to add the two Fractions $\frac{2}{5}$ and $\frac{7}{13}$ together; these reduced (*per* 69) are $\frac{1898}{4745}$ and $\frac{2555}{4745}$, whence $1898 + 2555 = 4453$; consequently $\frac{4453}{4745} = \frac{2}{5} + \frac{7}{13}$, the Sum required. Thus also, $\frac{2}{5} + \frac{7}{13} + \frac{17}{13} = \frac{5558}{4745} = 1\frac{813}{4745}$. So any other Fractions are added together.

71. In like Manner you subtract one Fraction from another; thus $\frac{7}{13} - \frac{2}{5} = \frac{657}{4745}$, because $2555 - 1898 = 657$. So also $\frac{2}{5} - \frac{17}{13} = \frac{1898 - 1105}{4745} = \frac{793}{4745}$. And the like of others. When Fractions are thus added or subtracted, the fractional Sum or Difference is to be reduced to its lowest Denominator by the Rule of (66.)

72. To multiply Fractions together, is no more than to multiply the Numerators and the Denominators among themselves, and the Product thence arising will be that which is required. Thus $\frac{2}{5} \times \frac{7}{13} = \frac{14}{65}$. Thus also $\frac{7}{13} \times \frac{17}{13} = \frac{119}{169}$; so $\frac{1}{9} \times \frac{7}{5} = \frac{7}{45}$.

73. To divide one Fraction by another, you multiply the Denominator of the Divisor by the Numerator of the Dividend, for the Numerator of the Quotient; then you multiply the Numerator of the Divisor by the Denominator of the Dividend for the Denominator of the Quotient. Thus $\frac{14}{65}$ divided by $\frac{2}{5}$ will stand thus, $\frac{2}{5} \frac{14}{65} (= \frac{70}{130} = \frac{7}{13}$; and thus $\frac{7}{13} \frac{119}{169} (= \frac{833}{2197} = \frac{119}{277}$, by Reduction. Lastly, $\frac{1}{9} \frac{7}{45} (= \frac{63}{405} = \frac{7}{45} = 1\frac{2}{5}$. These Cases of Division being only the Reverse of those of Multiplication (72.)

47. Any whole Number is expressed Fraction-wise, by only writing Unity under it, thus 5 is $\frac{5}{1}$, 17 is $\frac{17}{1}$, &c. And so Integers and Fractions may be added, subtracted, multiplied or divided in the same Manner, as pure Fractions themselves by the preceding Rules. Thus $\frac{2}{15} \times 5 = \frac{2}{15} \times \frac{5}{1} = \frac{10}{15} = \frac{2}{3}$. On the contrary, $5 \frac{2}{3} (= \frac{5}{1}) \frac{2}{3} (= \frac{2}{15})$.

CHAP. VI.

The Reduction of Quantities of divers Denominations into One.

75. **T**HE Rule for doing this is to multiply each superior Species by the Number which it contains of the proposed Species below it. Thus one Pound is reduced to Numbers expressing an equal Value in all the inferior Species; as also other Quantities, as in the Examples below.

1 l. Sterling.	1 lb. Avoirdupois.
20	16
—	—
20 Shillings.	16 Ounces.
12	16
—	—
240 Pence.	256 Drams.
4	
—	—
960 Farthings.	1 Tun.
	20
	—
1 lb. Troy.	20 Hundreds.
12	4
—	—
12 Ounces.	80 Quarters.
8	28
—	—
96 Drams.	2240 Pounds.
3	16
—	—
288 Scruples.	35840 Ounces.
20	
—	—
5760 Grains.	1 lb.

<i>1 lb. Apothecaries Wt.</i>	<i>1 Mile</i>
<u>12</u>	<u>8</u>
<i>12 Ounces.</i>	<i>8 Furlongs.</i>
<u>20</u>	<u>40</u>
<i>240 Penny Wt.</i>	<i>320 Rods.</i>
<u>24</u>	<u>$16\frac{1}{2}$</u>
<i>5760 Grains.</i>	<i>5280 Feet.</i>
	<u>12</u>
<i>1 Day.</i>	<i>63360 Inches.</i>
<u>24</u>	<i>1 Circle.</i>
	<u>12</u>
<i>24 Hours.</i>	
<u>60</u>	<i>12 Signs.</i>
	<u>30</u>
<i>1440 Minutes.</i>	<i>360 Degrees.</i>
<u>60</u>	<u>60</u>
<i>86400 Seconds.</i>	<i>21600 Minutes.</i>
	<u>60</u>
	<i>1296000 Seconds.</i>

76. If the Quantity, to be reduced, consists of different Species, the Number of each several Species is to be taken in, or added to the Product which is of the same Kind or Denomination, as you proceed in the Reduction; according to what you see here exemplified.

<i>l. s. d. f.</i>	<i>lb. oz. pwt. grs.</i>
15 17 4 3	9 7 15 21
<u>20</u>	<u>12</u>
317 s.	115
<u>12</u>	<u>20</u>
3808 p.	2315
<u>4</u>	<u>24</u>
15235 f.	9261
	<u>4632</u>
	55581

Hence

Hence several Questions may be proposed for the Learner's Exercise, as follow.

lb. oz. drs.
In 35 13 15 Avoirdupoise Weight, how many Drams?

T. C. Qrs. lb.
In 17 13 3 25, how many Pounds?

M. F. R. F.
In 57 7 37 15, how many Feet?

D. H. ' "
In 275 17 39 48, how many Seconds?

R. S. ° ' "
In 15 10 27 49 53, how many Seconds?

Lds. Qrs. B. G.
In 35 4 7 5, how many Gallons?

Hgs. Gal. Pts.
In 13 51 7, how many Pints?

77. When we have any large Number expressing any Quantity in its lower Species, the same may be reduced to any or all the higher Species by Division, being only the Reverse of the other Process by Multiplication ().

Thus suppose it were required to know how many Pounds, Shillings, Pence and Farthings were contained in 15235 Farthings? 'Tis evident, *if we divide first by 4, the Quotient will be Pence; this divided by 12, will quote Shillings; and these again divided by 20, will shew the Number of Pounds; the Remainders in each Division being the odd Shillings, Pence, and Farthings.* The Work placed after the usual Manner will stand as below.

		12	20	
4)	15235	(3808	(317	(15
	12	36	20	
	—	—	—	
	32	20	117	
	32	12	100	
	—	—	—	
	35	88	17	
	32	84		
	—	—		
	3	4		

Answer 15l. 17s. 4d. 3f.

Again, In 55581 Grains, how many Pounds, Ounces, Pennyweights, and Grains?

24) 55581	20	12	
48	20	108	
75	31	7	
72	20		
38	115		
24	100		
141	15		
120			
21			

lb. oz. pwt. grs.
Answer 9 7 15 21

After the same Manner the Learner may operate the following Questions.

In 59786 Grains, how many Pounds, Ounces, Drams, Scruples, and Grains? Troy.

In 197568 Ounces, Avoirdupois, how many Tuns?

In 1000000 Feet, how many Miles, &c.

In 2974600", how many Days?

In 5973864 Pints, how many Load?

C H A P. VII.

Of DECIMAL ARITHMETIC.

78. **T**HE Nature and Notation of Decimal Numbers having been already declared (12, 13, 14,) I shall proceed immediately to give the Rules for their Operation, The first of which is

A D D I T I O N.

The *Addition* of Decimal Numbers, does no way differ from that of Integers, due Care being taken to place all the particular Sums, so that the first Places of the integral or decimal Parts be exactly under each other, as is seen in the following Examples. (See 25, 27.)

5,7	64,75	5,729
76,2	98,30	43,605
538,9	27,64	9,834
9761,5	59,37	30,546
<hr/>	<hr/>	<hr/>
10382,3	250,06	75,102
<hr/>	<hr/>	<hr/>
		164,816
		<hr/>

79. If any Number be purely decimal, or has no integral Part, 'tis usual to put a Cypher in Units Place of Integers, as thus,

0,057	0,5729
0,762	4,3605
5,389	0,9834
97,615	3,0546
<hr/>	<hr/>
103,823	7,5102
<hr/>	<hr/>
	16,4816
	<hr/>

80. Cyphers on the Right Hand of a decimal Number avail nothing, and are therefore more elegantly omitted.

Thus instead of {	0,0100	we write {	0,01
	53,9270		53,927
	4,1009		4,1009
	975,2300		975,23
	87,1200		87,12
	<hr/>		<hr/>
	1120,3879		1120,3879

SUBTRACTION.

81. The same Precautions being observed, *Subtraction* of Decimals is performed in all Respects like that of Integers, as in the Examples following. See (44.)

5723,8765	69527,8675
1310,6243	43486,574
<hr/>	<hr/>
4413,2522	26041,2935
<hr/>	<hr/>

572,0987

179,5392,5987

1435,2

1379,82560055,3744

0,5697631

0,55890300,0108601

5.

4,8769020,123098

10,005

0,00987539,9951247

100000,

9,000000199990,9999999

MULTIPLICATION.

82. In *Multiplication* of Decimals, having placed the Factors (as in common Multiplication, 51.) you observe this general Rule, viz. *Cut off so many Places of Figures for Decimals in the Product as there contain'd Decimal Places in both the Factors.*

Thus Mult. 17,35
by 4

69,40

57,38
1,6

34 428

57 38

91,80848,97
3,84

19588

39176

14691

188,0448

1750

0,76

10500

12250

1330.

0,758

0,52

1516

3790

0,39416

0,80507

0,305

402535

2415210

0,24554635

83. But if it happens that when the Operation is finished, there are not so many Figures in the Product, as there are Places of Decimals in the Factors, then Cyphers are to be prefix'd to the

the Product to make the Number of Places equal. As in these Examples.

$$\begin{array}{r}
 .3 \\
 .2 \\
 \hline
 .06
 \end{array}
 \quad
 \begin{array}{r}
 .09 \\
 .08 \\
 \hline
 .0072
 \end{array}
 \quad
 \begin{array}{r}
 .00175 \\
 .0076 \\
 \hline
 1050 \\
 1225 \\
 \hline
 .000013300
 \end{array}
 \quad
 \begin{array}{r}
 .001 \\
 .01 \\
 \hline
 .00001
 \end{array}$$

$$\begin{array}{r}
 59. \\
 .000006 \\
 \hline
 .000354
 \end{array}
 \quad
 \begin{array}{r}
 .1000101 \\
 .1 \\
 \hline
 .01000101
 \end{array}
 \quad
 \begin{array}{r}
 1000000. \\
 .00000001 \\
 \hline
 .01
 \end{array}$$

DIVISION.

84. Division of Decimals is also perform'd by one general Rule, viz. *Divide the Numbers as if they were all Integers, and then cut off so many Figures for Decimals in the Quotient as when added to those of the Divisor, do make the same Number of Decimals as are contain'd in the Dividend.* Examples follow. (See 51, 54.)

$$\begin{array}{r}
 1,6) 91,808 (57,38 \\
 \underline{80} \\
 118 \\
 \underline{112} \\
 60 \\
 \underline{48} \\
 128 \\
 \underline{128} \\
 \dots
 \end{array}
 \quad
 \begin{array}{r}
 48,97) 188,0448 (3,84 \\
 \underline{14691} \\
 41134 \\
 \underline{39176} \\
 19588 \\
 \underline{19588} \\
 \dots
 \end{array}$$

$$\begin{array}{r}
 1750) 1330,00 (.76 \\
 \underline{12250} \\
 10500 \\
 \underline{10500} \\
 \dots
 \end{array}
 \quad
 \begin{array}{r}
 .52) .39416 (.758 \\
 \underline{364} \\
 301 \\
 \underline{260} \\
 416 \\
 \underline{416} \\
 \dots
 \end{array}$$

85. If, when the Division is finished, there are not so many Places in the Quotient as with those Decimals in the Divisor will equal the Number of Decimals in the Dividend, then Cyphers must be prefixed to equal that Number. As in these Examples.

$$\begin{array}{r} .09 \,) \, .0072 \, (\, .08 \\ \underline{72} \\ \dots \end{array} \qquad \begin{array}{r} 59 \,) \, .000354 \, (\, .000006 \\ \underline{354} \\ \dots \end{array}$$

86. When the Dividend is an integral Number, so many Cyphers are to be annexed thereto as there are decimal Places in the Divisor; and the Quotient is in this Case integral.

$$\begin{array}{r} \text{Thus } 25 \,) \, 425.0 \, (\, 170. \\ \underline{25} \\ 175 \\ \underline{175} \\ \dots 0 \end{array} \qquad \begin{array}{r} .39 \,) \, 741.00 \, (\, 1900. \\ \underline{39} \\ 351 \\ \underline{351} \\ \dots 00 \end{array}$$

$$\begin{array}{r} 5,116 \,) \, 1279.000 \, (\, 250. \\ \underline{10232} \\ 25580 \\ \underline{25580} \\ \dots 0 \end{array} \qquad \begin{array}{r} .001 \,) \, 597,000 \, (\, 597000. \\ \underline{597} \\ \dots \end{array}$$

87. But if, when the Division is thus far finished, there happens to be any Remainder; then more Cyphers are to be annexed to the former in the Dividend, and so many Places are Decimal in the Quotient, as is evident in the following Examples. (See 61.)

$$,7 \text{) } 673.0|00 \text{ (} 961,42$$

63

43

42

10

7

30

28

20

14

6

$$1,3 \text{) } 12976.0|000 \text{ (} 9981,538$$

117

127

117

106

104

20

13

70

65

50

39

110

104

6.

$$,71 \text{) } 29754,00|000 \text{ (} 41907,042$$

284

135

71

644

639

500

497

300

284

160

142

18

$$,015 \text{) } 1.000|00 \text{ (} 66,66$$

90

100

90

100

90

100

90

10

88. N. B. In Case any large decimal Numbers are to be multiplied by each other, and it be required to retain only a certain Number of decimal Places in the Product, you may contract the Work and shorten the Labour by proceeding as follows, viz. Write down the Multiplicand as usual, and then write under it the Multiplier inverted, with the Unit's Place thereof under that Place of the Multiplicand, whose Place you intend the Product shall extend to; then multiply, as usual, by each Figure of the Multiplier, be-

F

ginning

ginning at those of the *Multiplicand* which stand over it, neglecting those to the Left, unless so far as to observe what would arise from multiplying the Figure immediately foregoing, which must be taken in at the Beginning of each Line, the first Figure of all which must stand under one another on the *Right-hand*.

89. Thus let it be required to multiply 3,141592 by 52,7438 to have four Places of Decimals in the Product. And also 104226,8672 by ,261799388; the Work for each will stand as below.

<i>Multiplicand</i>	3,1415 92	104226,867 2
<i>Multiplier inverted</i>	8347,25	883997 162,0
	<hr/>	<hr/>
	1 5707 96	20845 373 4
	628 32	6253 612 0
	219 91	104 226 8
	12 57	72 958 7
	94	9 380 3
	25	937 9
	<hr/>	<hr/>
<i>Product</i> =	165,69 95	31 2
		8 3
		8
		<hr/>
		<i>Product</i> = 27286,529 4

90. The Reason of this Contraction will easily occur to any one who considers the Work at large, as it stands below for the first of these Examples.

3,1 4 1592
5 2,7438
<hr/>
2 5 1 32736
9 4 2 4776
125 6 6 368
2 199 1 1 44
6 283 1 8 4
157 079 6 0
<hr/>
165,699 5 0 01296

The perpendicular Line here drawn among the Figures cuts off all the superfluous Part of the Work to the Right, and leaves the significant Part on the Left, which is the same as the contracted Part, but in an inverted Order, which is the Reason why the Multiplier is inverted in that Case to produce it.

N. B. What relates to the Doctrine of *Repetends* or circulating Decimals, we shall refer to *Logarithms*; as this intricate Affair is most easily manageable by those artificial Numbers.

C H A P. VIII.

The Reduction of Vulgar Fractions, and Quantities of divers Species to Decimal Numbers.

91. **A** Common Fraction is reduced into a decimal Expreffion of the same Value by dividing the Numerator by the Denominator by the Rules in the preceding Chapter. As in the Examples below.

$$\frac{2}{5} = 5 \overline{) 2,0} (= 0,4) \qquad \frac{3}{8} = 8 \overline{) 3,000} (= 0,375)$$

$$\begin{array}{r} 20 \\ \hline \end{array}$$

$$\begin{array}{r} 24 \\ \hline 60 \\ 56 \\ \hline \end{array}$$

$$\frac{8}{50} = 6 \overline{) 1,000} (= 0,16)$$

$$\begin{array}{r} 6 \\ \hline 40 \\ 36 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 40 \\ 40 \\ \hline \end{array}$$

$$5 \frac{3}{8} = \frac{43}{8} = 8 \overline{) 43,000} (= 5,375)$$

$$\begin{array}{r} 40 \\ \hline 30 \\ 24 \\ \hline 60 \\ 56 \\ \hline 40 \\ 40 \\ \hline \end{array}$$

92. By this Means you find the decimal Value of any Species of *Money, Weight, Measure, Time, Motion, &c.* in any Denomination above it. viz. By dividing Unity by the Number expressing how many of that Species make One in the superior

Denomination proposed. Thus because four Farthings make one Penny; therefore $\frac{1}{4} = 0,25$ is the Decimal of a Penny for one Farthing. In like Manner, $\frac{1}{12} = 0,083$ = the decimal Part of one Shilling for a Penny; and $\frac{1}{20} = 0,05$ = the Decimal of a Pound for one Shilling.

93. Again, if it be required to know what decimal Part of a Pound one Farthing is, because 960 Farthings make a Pound, therefore $\frac{1}{960} = 0,0010416$ is the Decimal of a Pound for one Farthing. After this Manner the following Tables are made, shewing the decimal Value for each Species of the integral Quantity or highest Denomination, which is always Unity, or 1, in the several Sorts of Money, Weight, Measure, &c.

<i>One Pound</i>	1.
<i>Shilling</i>	0,05
<i>Penny</i>	0,00416
<i>Farthing</i>	0,0010416

<i>Troy Pound</i>	1.
<i>Ounce</i>	0,083
<i>Dram</i>	0,010416
<i>Scruple</i>	0,003472
<i>Grain</i>	0,0001736

<i>One Tun</i>	1.
<i>Hundred</i>	0,05
<i>Quarter</i>	0,0125
<i>Pound</i>	0,000446
<i>Ounce</i>	0,000028

<i>One Mile</i>	1.
<i>Furlong</i>	0,125
<i>Rod</i>	0,003125
<i>Foot</i>	0,000189
<i>Inch</i>	0,000016

<i>One Day</i>	1.
<i>Hour</i>	0,0416
<i>Minute</i>	0,000694
<i>Second</i>	0,0000011

<i>A Circle</i>	1.
<i>Sign</i>	0,083
<i>Degree</i>	0,0027
<i>Minute</i>	0,00004
<i>Second</i>	0,0000006

<i>One Load</i>	1.
<i>Quarter</i>	0,2
<i>Busbel</i>	0,025
<i>Gallon</i>	0,003125
<i>Pint</i>	0,00039

<i>One Tun</i>	1.
<i>of Wine</i>	1.
<i>Pipe</i>	0,5
<i>Hogshead</i>	0,25
<i>Tierce</i>	0,16
<i>Gallon</i>	0,003967,

94. Having any Quantity expressed in divers Species, as 15*l.* 17*s.* 4*d.* 3*f.* 'tis easy, by the Tables, to turn it into Decimals.

Thus

$$\text{Thus } \begin{cases} 1 \times 15 = 15 \text{ l.} \\ 0,05 \times 17 = 0,85 \\ 0,00416 \times 4 = 0,016 \\ 0,001 \times 3 = 0,003 \end{cases}$$

Therefore 15*l.* 17*s.* 4*d.* 3*f.* = £ 15,869

95. Hence, by this Method, it will be easy to perform some Operations in Arithmetic, which would otherwise prove very irksome and difficult. Thus, suppose it was required to

$$\begin{array}{r} \text{Feet Inches} \\ \text{Multiply } 12 : 9\frac{3}{4} = 12,8124 \\ \text{By } 7 : 5\frac{1}{2} = 7,4582 \end{array}$$

Now this would greatly puzzle a Learner to perform in the common Way, but when reduced to Decimals, is only a Case of common Multiplication. And it should be a Maxim with School-masters never to torture the Genius of a Scholar with things extremely difficult, and at the same Time unnecessary, or performable by easier Methods; which is but too commonly the Case.

CHAP. IX.

Of the Ratios of Numbers, and the Rules of Proportion, or Rule of Three Direct and Inverse.

96. **A**S the Ratio of Numbers consists of a Comparison or Relation in respect of Magnitude; and as one Number may exceed another both by *Addition* and *Multiplication*, therefore two Sorts of Ratios will arise in the Comparison of Numbers, *viz.* one, which will be expressed by their Difference when the lesser is taken from the greater; and another, which will be expressed by the Quotient, in dividing the greater by the lesser.

97. Hence, in this Series of Numbers 1, 2, 3, 4, 5, 6, 7, 8, &c. where each is greater or less than the other by Addition or Subtraction of 1, the common Difference will be 1 between any two contiguous Terms, which is therefore called the *common*

Ratio

Ratio of the Series; thus the Ratio of 2 to 1, is $2 - 1 = 1$; of 5 to 4, is $5 - 4 = 1$; and so of the Rest. But the Ratio of 3 to 1, is $3 - 1 = 2$, and 5 to 3 = $5 - 3 = 2$, which is double the former. And the Ratio of 4 to 1 = $4 - 1 = 3$, and 5 to 2 = $5 - 2 = 3$, &c. which are triple the First. In the following Series 1, 3, 5, 7, 9, 11, 13, 15, &c. the Ratio or common Difference is 2. In this Series 5, 9, 13, 17, 21, 25, &c. the Ratio is 4; and so it may be any given Number, by which any Series of Numbers encrease or decrease. And hence such a Series of Numbers are said to be in *arithmetical Progression*.

98. The other Sort of Ratio is that between Numbers which differ by a *common Multiplication or Division*; Thus, if 1 and each subsequent Product be constantly multiplied by 2 this Series will arise, viz. 1, 2, 4, 8, 16, 32, 64, &c. and this constant Multiplier is the *common Ratio of the Series*; for the Ratio of any two proximate Numbers is the same; thus the Ratio of 2 : 1 is $\frac{2}{1} = 2$; and the Ratio of 16 : 8 = $\frac{16}{8} = 2$. Again, in this Series 1. 3. 9. 27, 81, 243, &c. the Ratio is 3; thus 3 : 1 = $\frac{3}{1} = 3$, or 243 : 81 = $\frac{243}{81} = 3$, and so of others.

99. In these Series, the Ratio of the third Term to the first is not *double* that of the Second to the First, (as in arithmetical Series) but is said to be *duplicate of it*; thus 4 : 1 = $2 \times 2 = 4$, whereas 2 : 1 = 2, in the first Series; and in the second Series, 9 : 1 = $3 \times 3 = 9$, whereas 3 : 1 = 3. Again, the Ratio of the fourth Term to the First is not *triple* (as in 91) but *triplicate* of the Ratio of the second to the first. Thus, 8 : 1 = $2 \times 2 \times 2 = 8$, which is triplicate of 2 : 1 = 2; or this latter Ratio is three Times involved in the former. Thus also 27 : 1 = $3 \times 3 \times 3 = 27$, which therefore is *triplicate* the Ratio of 3 : 1 = 3. Whence a Series of Numbers having such a Ratio is said to be in *geometrical Progression*.

100. Hence it is evident, that in order to make any Ratio twice as great as before, it must be multiplied by itself. Thus 2 : 1 added to 2 : 1, is $\frac{2}{1} \times \frac{2}{1} = \frac{4}{1}$; or $\frac{3}{1} \times \frac{3}{1} = \frac{9}{1}$, is 3 : 1 added to it self, or made twice as great. Consequently, the *Addition of geometrical Ratios* is performed by multiplying those Ratios by each other. Thus the Sum of the Ratios 5 : 3 and 8 : 7 is $\frac{5}{3} \times \frac{8}{7}$

$= \frac{40}{21} = 40 : 21$. Again, $1 : 3$ added to $5 : 9$ makes the Sum equal to the Ratio $5 : 27$, because $\frac{1}{3} \times \frac{5}{9} = \frac{5}{27}$.

101. On the other Hand, the *Subtraction of the geometrical Ratios* is performed by dividing the greater by the lesser. Thus, if from $4 : 1$ I take $2 : 1$, there will remain $2 : 1$, because $\frac{2}{1} \div \frac{4}{1} (= \frac{2}{4})$. In like Manner, if from the Ratio $40 : 21$ I subduct the Ratio of $8 : 7$, there will remain the Ratio of $5 : 3$ for $\frac{8}{7} \div \frac{40}{21} (= \frac{5}{3})$. And from the Ratio $5 : 27$ if we take $5 : 9$, there will remain $1 : 3$; because $\frac{5}{9} \div \frac{5}{27} (= \frac{1}{3})$.

102. From a Comparison of geometrical Ratios results the *Doctrine of Proportion or Analogy* (21) for if there be three Numbers, such that the Ratio between the first and second be the same with the Ratio between the second and third, then are those Numbers said to be *Proportionals*, as $1, 2, 4$; for $1 : 2 = 2 : 4$, or $1 : 2 :: 2 : 4$. Also $1, 3, 9$, are *proportional*, because $1 : 3 = 3 : 9$ (by 98.) Thus also four Numbers are proportional, when the Ratio is the same between the first and second, as it is between the third and fourth; as $1, 2, 4, 8$, or $1, 3, 9, 27$; because $1 : 2 = 4 : 8$; and $1 : 3 = 9 : 27$.

103. These proportional Numbers are such as either succeed each other immediately in the Series, as $1 : 2 :: 4 : 8$, or $4 : 8 :: 16 : 32$; and the Proportion is said to be *continued*, and such Terms are called *continual Proportionals*. But if the Ratios are taken between such Pairs of Numbers as do not stand together, or immediately follow each other in the Series, then is the Proportion said to be *discontinued* or *disjunct*. As in these $1 : 2 :: 8 : 16$, or $4 : 8 :: 32 : 64$; or $1 : 3 :: 81 : 243$. And this makes what is vulgarly called the *Golden Rule* (because of its Usefulness) or *Rule of Three*.

104. For by this Rule, if any three Numbers are given as $3, 9, 81$, a Fourth may be found which shall be in Proportion, that is, shall have the same Ratio to the third Term 81 , as there is between the two first 3 and 9 . And because this fourth Term is as the unknown or sought, let us call it x . Then by Supposition, $3 : 9 :: 81 : x$; therefore $\frac{9}{3} = \frac{x}{81}$ (by the Nature of the Series 98.)

105. Now it is an *Axiom*, that if equal Things are multiplied by equal Things, the Products will be equal; therefore if the two equal

Ratios $\frac{9}{3}$, $\frac{x}{81}$ be each multiplied by the same Number 81, we

shall have $\frac{9 \times 81}{3} = \frac{x \times 81}{81} = x$, as is evident because $\frac{81}{81} = 1$,

and so makes no Alteration in the Value of x ; therefore the Rule is, multiply the second and third Numbers together, and divide the Product by the First, the Quotient will be the fourth Number sought.

Thus $\frac{9 \times 81}{3} = 243$, so that $3 : 9 :: 81 : 243$, according to (98.)

106. Hence this Rule comes to be of very great and frequent Use in the various practical Affairs of Life, which I shall exemplify by a few Questions, as follows.

If 3 Yards cost 9 Shillings, what will 81 Yards cost? See the Operation.

Yds.	S.	Yds.	£.	S.
3	9	81	12	3
	9			
	—		20	
	3) 729		(243	(12l.
	6		20	
	—		—	
	12		43	
	12		40	
	—		—	
	··9		·3	
	9			Answer 12l. 3s.
	—			
	.			

If 100l. gain 5l. Interest, what will 750l. gain in the same Time?

l.	l.	l.	l.	s.
100	5	750	37	10
	5			
	—			
	100) 3750,0		(37,5	= 37l. 10s.
	3750 0			
	—			
	·····			

If the Moon describes the whole Ecliptic, or 360° in $27\frac{1}{2}$ Days, how many Degrees does she pass thro' in one Day?

$$\begin{array}{ccc} D. & & D. \\ \text{Analogy. } 27,5 : 360^{\circ} :: 1 : 13^{\circ},09 \end{array}$$

I

$$\begin{array}{r} 27,5 \overline{) 360} \quad (13,09, \text{ Answer.} \\ \underline{275} \\ 850 \\ \underline{825} \\ 2500 \\ \underline{2475} \\ \hline \cdot\cdot 35 \end{array}$$

According to the accurate Measures of the *French*, there are 57060 *Toises* in a Degree, or 242360 *Paris Feet*; the Circumference therefore of a great Circle is 123249600 Feet; and the *Paris Foot* is to the *English*, as 1068 to 1000; Quere how many *English Feet* and Miles are in the Earth's Circumference?

$$\begin{array}{ccc} & \text{Paris Feet.} & \text{Eng. Feet.} \\ \text{Analogy } 1000 : 1068 :: 123249600 : 131630573 \\ \text{Then because } 5280 \text{ Feet} = 1 \text{ Mile, say;} \\ \text{F.} & \text{M.} & \text{F.} & \text{M.} & \text{Yds.} & \text{F.} \\ \text{As } 5280 : 1 :: 131630573 : 24930 & 57 & 2. \end{array}$$

107. When the Ratio of the Series is carried on by Division below the first Term, as it is above it by Multiplication, as thus, $16 : 8 : 4 : 2 : 1 : \frac{1}{2} : \frac{1}{4} : \frac{1}{8} : \frac{1}{16}$, &c. then are the Ratios of these fractional Numbers to Unity, said to be *inversely* or *reciprocally* as the Ratios of the integral Numbers to Unity; that is, the Ratio of $\frac{1}{8}$ to 1 is the Reciprocal of 8 to 1; or $\frac{1}{8}$ is as much less as 8 is greater than Unity or 1.

108. When, therefore, any Question in the Rule of Three is proposed, and is of such a Nature, that the fourth Number x , or Consequent of the second Ratio of the Analogy is reciprocally to its Antecedent of what the Consequent in the first Ratio is to its Antecedent, then the *Rule of Three* is said to be *Inverse*.

G

And

And the Terms must be stated in a contrary or inverse Order, as in the following Question.

If 12 Men do a Piece of Work in 15 Days, in how many Days will 20 Men do the same?

Here it is evident, the 4th Number x cannot stand in the 4th Place, as before (104) viz. $12 : 15 :: 20 : x$; for then x would be directly to 20, as 15 to 12; but x must be less than 20, and therefore reciprocally as 15 to 12. Again it is plain,

$M. \quad M. \quad D.$
that $20 : 12 :: 15 : x$ Days; and because the Proportion is here direct, therefore $\frac{12 \times 15}{20} = x$ (105.) Consequently if

we take the Terms as they stand in Questions of this Sort, the Rule for operating them in this, *Multiply the first and second Numbers together, and divide by the Third, and the Quotient will be the fourth Number (x) sought.* So in the present Case $\frac{12 \times 15}{20} = x = 9$ Days, the Answer.

109. I shall here subjoin a Question or two of this Sort, as follows.

A Friend lends me 372l. for 7 Years and 8 Months, how long must I lend him 496l. for an Equivalent?

Then per Rule $\frac{496 \times 7,6}{372} = 5,75$ Years, Answer.

If 3 Men, and 4 Women, can do a Piece of Work in 56 Days, how long will one Man and one Woman be doing the same?

Because of 3 Men and 4 Women, some Number must be found that may be divided by 3 and 4 without a Remainder, as the Number 12; then make the 3 Men or 4 Women equal to 12 Boys; and 1 Man will be equal to 4 Boys, and 1 Woman to 3 Boys, and 1 Man and 1 Woman to 7 Boys; then the Question is reduced to this, *If 12 Boys do a Piece of Work in 56 Days, in how many Days will 7 Boys do the same?*

Answer $\frac{12 \times 56}{7} = 96$ Days.

110. I shall here say Nothing of the compound Rule of Proportion, or, as it is usually called, the Double Rule of Three, wherein 5 Numbers are given to find a Sixth by means of two Analogies,

gies, because this will be best explained, and the Reason of Operation will be more evidently seen, in the Method of treating this Subject in Algebra.

III. From what has been said of Ratios, it is easy to make a Comparison of their Magnitude, having first premised this Definition, viz. *That Ratio is said to be greater, equal to, or less than another, whose Antecedent hath a greater, or an equal, or a less Proportion to its Consequent, than the other's Antecedent hath to its Consequent.* Thus the Ratio of 6 to 3 is said to be greater, and the Ratio of 4 to 3 less than the Ratio of 5 to 3. Thus again, the Ratio 6 : 3 is greater, and the Ratio 6 : 5 less than the Ratio of 6 : 4.

II2. Hence, when two Ratios are to be compared whose Antecedent and Consequent are both different, *it will be proper to reduce them to the same Antecedent, or the same Consequent, before the Comparison be made*; as for Instance, suppose I would know which of the two Ratios 7 : 5 or 4 : 3 be the greater; to know this, I say, as 4 : 3 :: 7 : $5\frac{1}{3}$; then it is evident, 7 : 5 is a greater Ratio than 7 : $5\frac{1}{3}$ (by III,) and consequently greater than 4 : 3. Again, suppose I would compare the Ratios 3 : 4 and 5 : 7; then I say, as 3 : 4 :: 5 : $7\frac{1}{3}$ = $7 - \frac{1}{3}$; but the Ratio of 5 : $7 - \frac{1}{3}$ is greater than the Ratio of 5 : 7, and therefore the Ratio 3 : 4 is greater than the Ratio of 5 : 7.

II3. In any Series of Numbers, 48, 40, 30, 15, *the Ratio of the Extremes is said to be compounded of all the intermediate Ratios*; viz. $48 : 15 = 48 : 40 + 40 : 30 + 30 : 15$; which will easily appear by placing all Fraction-wise, thus; $\frac{48}{15} =$

$\frac{48}{40} \times \frac{40}{30} \times \frac{30}{15} = \frac{48 \times 40 \times 30}{15 \times 40 \times 30}$, for it is plain, since 40 \times 30 is in the Numerator and Denominator both, it makes no Alteration in the Value of the Fraction, which therefore is equal to $\frac{48}{15}$.

II4. Hence, on the Contrary, any Ratio 48 : 15 may be resolved into any Number of other lesser Ratios of which it doth consist, as so many Parts of the Whole. Thus $\frac{48}{15} = \frac{48}{40} \times \frac{40}{30} \times \frac{30}{15}$; or $\frac{48}{15} = \frac{48}{45} \times \frac{45}{35} \times \frac{35}{15}$. Thus also the Ratio of 48 to 5 may be decomposed, or resolved into any other Number of Ratios, as $\frac{48}{5} = \frac{48}{42} \times \frac{42}{36} \times \frac{36}{27} \times \frac{27}{15} \times \frac{15}{5}$, and so in any other Case.

115. In any two Quantities or Numbers, whose Difference is very small in respect of the Quantities themselves, if so much be *added to one*, and *subtracted from the other*, as shall make their *Difference double or triple, or half, or a third Part* of what it was before, then those Quantities or Numbers shall be in a *Duplicate* or a *Triplicate*, or a *Subduplicate* or a *Subtriplicate Ratio* of that they were in before any such Change was made, nearly.

116. Thus let there be two Numbers 10 and 11, whose Difference is 1, then if $\frac{1}{2}$ be added to 11 and taken from 10 we have $11\frac{1}{2}$ and $9\frac{1}{2}$, whose Difference is 2, double of the former Difference. Now I say, the Ratio of $10\frac{1}{2}$ to $9\frac{1}{2}$ is *duplicate* of that of 11 to 10, nearly; for the Ratio of $11\frac{1}{2}$ to $9\frac{1}{2}$ is resolvable into the Ratios $11\frac{1}{2} : 10\frac{1}{2}$, and $10\frac{1}{2} : 9\frac{1}{2}$ (by 114.) Now the Ratio of $11\frac{1}{2} : 10\frac{1}{2}$ is greater than the Ratio 11 to 10, and the Ratio of $10\frac{1}{2} : 9\frac{1}{2}$ is nearly as much less (as will appear from 112) therefore the Sum of both those Ratios will be nearly equal

to twice the Ratio of 11 to 10, that is, $\frac{11\frac{1}{2}}{10\frac{1}{2}} \times \frac{10\frac{1}{2}}{9\frac{1}{2}} = \frac{11}{10} \times \frac{11}{10}$,

nearly; for the first is $\frac{120,75}{99,75}$, and the latter is $\frac{121}{100}$, which are very nearly equal.

117. Again, if we add 1 to 11 and take it from 10, we shall have 12 and 9, whose Difference is 3; then will the Ratio 12 : 9 be triplicate, or three Times as great as the Ratio 11 : 10. For $\frac{12}{9} = \frac{12}{11} \times \frac{11}{10} \times \frac{10}{9}$ (by 114) $= \frac{1320}{990}$; and $\frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} = \frac{1331}{1000}$, which two Fractions are very nearly equal.

118. Thirdly, if the Difference between 11 and 10 be reduced to half or a third Part, the Ratio will be reduced *subduplicately* or *subtriplicately*; thus add $\frac{1}{4}$ to 10, and take it from 11, and we have $10\frac{1}{4}$ and $10\frac{3}{4}$, whose Difference is half of the former. Now $10\frac{1}{4} : 10\frac{3}{4}$ is *subduplicate* of the Ratio 10 : 11, or as $\sqrt{10} : \sqrt{11}$. Also, if $\frac{1}{3}$ be added to 10 and taken from 11, you have $10\frac{1}{3}$ and $10\frac{2}{3}$, which are nearly in a *subtriplicate Ratio* of 10 to 11 or $\sqrt[3]{10}$ to $\sqrt[3]{11}$.

We see in these Examples how near these Ratios come to the Truth, where the Difference is no less than a 10th or 11th Part

of the Whole; but if we suppose the Difference to be a much less Part of the Whole, as an 100th, a 1000th, &c. they will be much more accurate; so that to multiply or divide the Ratio it will be sufficient to encrease or diminish one of the Numbers only. Thus $100 : 102$ is *duplicate* of the Ratio $100 : 101$; and $100 : 103$ is *triplicate* the Ratio of $100 : 101$. Also, $100 : 100\frac{1}{2}$ is *subduplicate*, and $100 : 100\frac{1}{3}$ is *subtriplicate* of the Ratio of $100 : 101$, nearly.

119. Hence we observe, that the Ratio $100 : 101$ is to the Ratio $100 : 102$ as $1 : 2$; and the Ratio $100 : 101$ is to the Ratio $100 : 103$, as $1 : 3$; the Ratio $100 : 101 : 100 : 104 :: 1 : 4$; and so on universally, which Theorem is of very great Use and ought to be well remembered by the *mathematical Reader*. What further relates to the Doctrine of *Ratios and Proportion*, will be delivered in Species (in the *Algebraic Part*) which will afford a more absolute and universal Speculation of the Nature and Properties thereof than can be obtained from Numbers.

CH A P. X.

Of the Powers of Numbers, and the Extraction of Roots.

120. **W**HEN any Number is multiplied by itself, it is said to be *squared*, and the Product is called the *Square* or second Power of that Number; thus $2 \times 2 = 4$, so 4 is the Square of 2; and 2 is said to be the *Square Root* of 4; and is thus expressed, $\sqrt{4} = 2$. So $7 \times 7 = 49$, and the Square Root of 49 is $\sqrt{49} = 7$, and so of any other Numbers.

121. As a Number multiplied by itself produces the Square, so that Square being multiplied by the said Number, or Root, produces the *Cube*, or third Power. Thus $4 \times 2 = 2 \times 2 \times 2 = 8$, the *Cube* of 2; and $49 \times 7 = 7 \times 7 \times 7 = 343$, the *Cube* of 7. So the *Cube Root* of 8 is $\sqrt[3]{8} = 2$; and the *Cube Root* of 343 is $\sqrt[3]{343} = 7$; and so of others.

122. Thus you proceed by a constant Multiplication of every subsequent Product by the same Number to raise any Power of that Number you think fit, as you see done for the 9 Digits in the following Table to the sixth Power.

Root, or first Power.	1	2	3	4	5	6	7	8	9
Square, or second Power.	1	4	9	16	25	36	49	64	81
Cube, or third Power.	1	8	27	64	125	216	343	512	729
Biquadrate, or fifth Power.	1	16	81	256	625	1296	2401	4096	6561
Sur-solid, or sixth Power.	1	32	343	1024	3125	7776	16807	32768	59049

123. When the *Square Root* of any Number is proposed to be found or extracted, it is done by the following

R U L E.

First, let the Figures of the Number be distinguished into Pairs by fixing a Point over every other one, beginning at Unit's Place. Then write such a Figure for the first Place in the Root, whose Square shall be equal to, or next less than the Figure or Figures from the last Point on the left Hand; then subtracting that Square, the other Figures of the Root will be found by taking down each Pair of Figures successively to the Remainders, for new Dividends, and doubling the Root so far as extracted for the first Part of the Divisor, enquire how often it is contained in the new Dividend, and place the Quotient for another Figure in the Root, and also annex it to the Divisor, which will be then completed.

124. This will be illustrated by the following Examples.
Quere the Square Root of 144 ?

$$\begin{array}{r}
 \cdot \cdot \\
 144 \text{ (12, the Square Root required. } \\
 \cdot \\
 22 \text{) } \cdot 44 \\
 \quad 44 \\
 \hline
 \cdot \cdot
 \end{array}$$

.. The

The Reason of pointing the Number in this Manner is, because there are always as many Places of Figures in the Root as there are Points over the given Number. But, till we come to Algebra, the Reason of the whole Operation will not so well appear as by working it at large (for the common Way is but a sort of Contraction) in the Manner following.

$$\begin{array}{r}
 \dots \\
 144 \left(\begin{array}{l} 10 \\ 100 - \frac{2}{20} \end{array} \right. \\
 \hline
 20 \left. \begin{array}{l} 44 \\ \frac{2}{22} \end{array} \right) \begin{array}{l} 44 \\ 44 \end{array} \left(2, \text{ then } 10 + 2 = 12, \text{ the Root.} \right. \\
 \hline
 \dots
 \end{array}$$

Extract the Root of 219024.

$$\begin{array}{r}
 \dots \\
 219024 \left(400 + 60 + 8 = 468, \text{ the Root.} \right. \\
 160000 \\
 \hline
 800 \left) \begin{array}{l} 59024 \\ \frac{60}{880} \end{array} \left(60 \right. \\
 \hline
 51600 \\
 \hline
 460 \times 2 = 920 \left) \begin{array}{l} 7424 \\ \frac{8}{928} \end{array} \left(8 \right. \\
 \hline
 7424 \\
 \hline
 \dots
 \end{array}$$

But this Example contracted in the common Way stands thus.

$$\begin{array}{r}
 \dots \\
 219024 \left(468, \text{ the Root.} \right. \\
 16 \\
 \hline
 86 \left) \begin{array}{l} 590 \\ 516 \end{array} \\
 \hline
 928 \left) \begin{array}{l} 7424 \\ 7424 \end{array} \\
 \hline
 \dots
 \end{array}$$

Another

Another Example here follows. To extract the Square Root of the Number 29506624.

$$\begin{array}{r}
 \begin{array}{c} \cdot \cdot \cdot \cdot \\ 29506624 \end{array} \quad (\begin{array}{c} \cdot \cdot \\ 5432 \end{array} = \text{the Root required.} \\
 \begin{array}{r}
 25 \\
 \hline
 104 \) \ \begin{array}{c} \cdot 450 \\ 416 \\ \hline \end{array} \\
 1083 \) \ \begin{array}{c} \cdot 3466 \\ 3249 \\ \hline \end{array} \\
 10862 \) \ \begin{array}{c} 21724 \\ 21724 \\ \hline \end{array} \\
 \dots\dots
 \end{array}$$

125. It is plain that Number must be a Square, whose Root may be extracted without a *Remainder*; and such Numbers may be as well *Decimal* as *Integral*, as in the following Example. What is the Square Root of 156,25.

$$\begin{array}{r}
 \begin{array}{c} \cdot \cdot \cdot \\ 156,25 \end{array} \quad (\begin{array}{c} \cdot \cdot \cdot \\ 12,5 \end{array} \text{ the Root required.} \\
 \begin{array}{r}
 \hline
 22 \) \ \begin{array}{c} \cdot 56 \\ 44 \\ \hline \end{array} \\
 245 \) \ \begin{array}{c} 1225 \\ 1225 \\ \hline \end{array} \\
 \dots\dots
 \end{array}$$

What is the Square Root of 50,2681?

$$\begin{array}{r}
 \begin{array}{c} \cdot \cdot \cdot \cdot \\ 50,2681 \end{array} \quad (\begin{array}{c} \cdot \cdot \cdot \\ 7,09 \end{array} = \text{Root required.} \\
 \begin{array}{r}
 49 \\
 \hline
 1409 \) \ \begin{array}{c} 12681 \\ 12681 \\ \hline \end{array} \\
 \dots\dots
 \end{array}$$

Required the Square Root of 0,366025.

$$\begin{array}{r}
 \cdot \cdot \cdot \cdot \cdot \cdot \\
 0,366025 \text{ (} 0,605 = \text{ the Root.} \\
 \underline{0} \\
 36 \\
 \underline{36} \\
 1205 \text{) } \cdot \cdot 6025 \\
 \underline{6025} \\
 \dots
 \end{array}$$

What is the Square Root of 0,00015625?

$$\begin{array}{r}
 \cdot \cdot \cdot \cdot \cdot \cdot \\
 0,00015625 \text{ (} 0,0125 = \text{ the Root.} \\
 \underline{1} \\
 22 \text{) } \cdot 56 \\
 \underline{44} \\
 245 \text{) } 1225 \\
 \underline{1225} \\
 \dots
 \end{array}$$

126. The Number that is not a Square, or whose Root cannot be extracted, is said to be *furd*, or *irrational*; but the Roots of such furd Numbers may be approximated in Decimals as near the Truth as required. For Instance, let it be required to extract the Square Root of 2. Annex to the given Surd, as many Pairs of Cyphers as you would have decimal Places in the Root, Thus

$$\begin{array}{r}
 \cdot \cdot \cdot \cdot \cdot \cdot \\
 \text{H} \quad 2,0000000000
 \end{array}$$

$$\begin{array}{r}
 \dots\dots\dots \\
 2,0000000000 (1,41421 \\
 \hline
 24) 1\ 00 \\
 96 \\
 \hline
 281) \cdot 400 \\
 281 \\
 \hline
 2824) 11900 \\
 11296 \\
 \hline
 28282) \cdot\cdot 60400 \\
 56564 \\
 \hline
 282841) \cdot 383600 \\
 282841 \\
 \hline
 100759
 \end{array}$$

Thus it appears the Square Root of 2 is 1,41421 true to five Places of Decimals ; if a greater Degree of Accuracy be required, more Places may be obtained by dividing the Remainder 100759 in the common Way by the Divisor 28284 (omitting the first Figure 1) as you see below.

$$\begin{array}{r}
 28284) 100759 (3562 \\
 84852 \\
 \hline
 159070 \\
 141420 \\
 \hline
 176500 \\
 169704 \\
 \hline
 \cdot\cdot 67960 \\
 56568 \\
 \hline
 11392
 \end{array}$$

Therefore the Square Root of 2 is still more truly 1,414213562.

127. The Square Root of any Vulgar Fraction is extracted by extracting the Root of the Numerator and Denominator for the fractional Root. Thus the Square Root of $\frac{25}{36}$ is $\frac{5}{6}$; for 5 is the Root for 25, and 6 the Root of 36, and $\frac{5}{6} \times \frac{5}{6} = \frac{25}{36}$; and so the Square Root of $\frac{144}{2500}$ is $\sqrt{\frac{144}{2500}} = \frac{12}{50}$; and so you proceed for any other. But in some Cases, the best Way will be to convert the *Vulgar* into a *Decimal Fraction* (by 91.) and so extract the Root in Decimals, as above taught (in 125, 126.)

128. The Extraction of the *Cube Root* will prove too difficult a Task in common Numbers; and as Nothing can be easier by Logarithms, I shall there shew the Method of doing it. Besides, the Reason of the Thing cannot be shewn till the Reader comes to the Algebraic Part, where it will be evident enough.

129. The Biquadrate Root of any Number is easily had by extracting the Square Root of the given Number first, and then the Square Root of that Root: Thus, let it be required to extract the *Biquadrate Root* of 4857532416.

$$\begin{array}{r}
 \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ 4857532416, (69696, \\ 36 \\ \hline \end{array} \\
 129 \) \ 1257 \\
 \quad 1161 \\
 \hline
 1386 \) \ 9653 \\
 \quad \quad 8316 \\
 \hline
 13929 \) \ 133724 \\
 \quad \quad 125361 \\
 \hline
 139386 \) \ 836316 \\
 \quad \quad \quad 836316 \\
 \hline
 \dots\dots
 \end{array}$$

Then $\overset{\cdot}{6}\overset{\cdot}{9}\overset{\cdot}{6}\overset{\cdot}{9}\overset{\cdot}{6}$, ($\overset{\cdot}{2}\overset{\cdot}{6}\overset{\cdot}{4}$, = the Biquadrate Root.

$$\begin{array}{r}
 4 \\
 \hline
 46 \) \ 296 \\
 \underline{276} \\
 524 \) \ 2096 \\
 \underline{2096} \\
 \dots
 \end{array}$$

For $264 \times 264 \times 264 \times 264 = 4857532416$. And thus you proceed in any other Case where the *Biquadrate Root* is required.

C H A P. XI.

Of the Nature and Use of LOGARITHMS.

130. **I**F a Series of Numbers in *Arithmetical Progression*, beginning from 0, and whose common Ratio is Unity, be appositely placed over another Series of Numbers in *Geometrical Progression*, in the following Manner, viz.

Arith.	0,	1,	2,	3,	4,	5,	6,	7,	8,	9,	&c.
Geom.	1,	2,	4,	8,	16,	32,	64,	128,	256,	512,	&c.

Then we may observe the following Things.

131. *First*; The several Terms in the Arithmetical Series *expound the Ratio* of the corresponding Terms in the Geometrical Series to the first Term; thus, 2 in the upper Series shews the Ratio of the Geometrical Series is *twice* repeated between 4 and 1; 5 shews the Ratio 5 Times repeated between 32 and 1; or that the Ratio $32 : 1$ is 5 Times as great as the Ratio $2 : 1$; and 9 denotes the Ratio $512 : 1$ to be 9 Times as great as the first Ratio $2 : 1$; and so of the Rest.

132. *Secondly*; That to the *Addition* of any two or more Terms in the Arithmetical Series, corresponds a *Multiplication* of the Numbers under them in the Geometrical Series; as in the following Examples. A,

$$\begin{array}{l} \text{A. } 1 + 2 = 3; 2 + 3 + 4 = 9; 1 + 3 + 5 = 9; \text{ \&c.} \\ \text{G. } 2 \times 4 = 8; 4 \times 8 \times 16 = 512; 2 \times 8 \times 32 = 512; \text{ \&c.} \end{array}$$

133. *Thirdly*; That for every *Subtraction* of Terms in the Arithmetical Series, there corresponds a *Division* of the Numbers under them in the Geometrical Series; as in these Instances.

$$\begin{array}{l} \text{A. } 2 - 1 = 1; \quad 7 - 3 = 4; \quad 9 - 4 = 5; \text{ \&c.} \\ \text{G. } 4 \div 2 = 2; \quad 128 \div 8 = 16; \quad 512 \div 16 = 32; \text{ \&c.} \end{array}$$

134. *Fourthly*; That when any Term in the Arithmetical Series is *doubled, tripled, quadrupled, &c.* there answers an *Involution* of the corresponding Term in the Geometrical Series to the *second, third, fourth, &c. Power*, Thus

$$\begin{array}{l} \text{A. } 3 + 3 = 6; \quad 3 + 3 + 3 = 9; \quad 2 + 2 + 2 + 2 = 8. \\ \text{G. } 8 \times 8 = 64; \quad 8 \times 8 \times 8 = 512; \quad 4 \times 4 \times 4 \times 4 = 256. \end{array}$$

135. *Fifthly*; That if any Term in the Arithmetical Series be *divided* by 2, 3, 4, &c. there answers an *Evolution* or *Extraction* of the *Square, Cubic, Biquadratic, &c. Root* in the corresponding Term of the Geometrical Series. Thus

$$\begin{array}{l} \text{A. } 4 \div 2 = 2; \quad 6 \div 3 = 2; \quad 8 \div 4 = 2; \text{ \&c.} \\ \text{G. } \sqrt{16} = 4; \quad \sqrt[3]{64} = 4; \quad \sqrt[4]{256} = 4; \text{ \&c.} \end{array}$$

136. *Sixthly*; That in the Arithmetical Series, if any three proximate Numbers be taken, the *Sum of the two Extreams is equal to double the middle Number*; thus, 3, 4, 5, give $3 + 5 = 4 \times 2 = 8$; and 7, 8, 9 give $7 + 9 = 8 \times 2 = 16$. Whence also $\frac{3 + 5}{2} = 4$, and $\frac{7 + 9}{2} = 8$, or *half the Sum of the Extremes is equal to the Mean*. And the Case is the same if any two Numbers of the Series be taken, their Sum will be always double of the Mean or middle Term between them. Thus, 1, 3, 5 give $1 + 5 = 2 \times 3 = 6$; and 2, 5, 8 give $2 + 8 = 2 \times 5 = 10$. Also if 4 Terms be taken any how, the *Sum of the two Extremes will always be equal to the Sum of the two Means*; thus, 1, 2, 3, 4, give $1 + 4 = 2 + 3 = 5$; and 3, 5, 7, 9, give $3 + 9 = 5 + 7 = 12$, &c.

137. *Seventhly*; That as every *Addition* of Terms in the *Arithmetical Series* has a corresponding *Multiplication* of Terms in the *Geometrical Series* (by 132,) therefore *the Product of the two Extremes, in any three Proportionals, is equal to the Square of the Mean*; thus, in 8, 16, 32 we have $32 \times 8 = 16 \times 16 = 256$; and therefore also $\sqrt{32 \times 8} = 16$, viz. the *Square Root of the Product of any two Numbers is always a Mean Proportional between them*.

138. *Eighthly*; That of any Terms in the *Geometrical Series*, *the Product of the two Extremes is ever equal to the Product of the two Means*. Thus, 2, 4, 8, 16, give $16 \times 2 = 8 \times 4 = 32$. And 2, 8, 32, 128, give $128 \times 2 = 32 \times 8 = 256$.

139. *Ninthly*; Hence, of four Terms in the *Arithmetical Series*, the last is equal to the *Difference between the Sum of the two Means and the first Term*. Thus, of 3, 5, 7, 9, we have $5 + 7 - 3 = 9$; or $7 + 5 - 9 = 3$. And in the *Geometrical Series*, the last of the four *Proportionals is equal to the Product of the two Means divided by the first Term*. Thus, of 8 : 32 : 128 : 512, we have $\frac{32 \times 128}{8} = 512$; or $\frac{128 \times 32}{512} = 8$. As we have elsewhere shewn (in 105.)

140. From what has been hitherto premised, it appears, that the Series of Numbers in *Arithmetical Progression*, are the *LOGARITHMS* of the Numbers in the other Series of *Geometrical Proportionals*; for all that we mean by *Logarithms*, is no more than *such a Sort of Numbers as are artfully contrived to express or expound the Ratios of common natural Numbers, considered as Terms in a Scale of Geometrical Proportion*. Now these Numbers in *Arithmetical Progression*, answer every Part of this Definition of *Logarithms* with respect to the Series below them (by what was observed in 131.) and therefore are their *Logarithms*, i. e. *Exponents of their Ratios*, as the Word imports in its *Greek Etymology*.

141. From hence it appears, that if we consider *our natural Numbers* as Terms in a *Scale of Geometrical Progression*, then if such other Numbers were invented and adapted thereto in a Series of *Arithmetical Progression*, these would be *Logarithms* of

of the other ; to their *Addition* and *Subtraction* would answer a *Multiplication* and *Division* of the respective common Numbers (by 132, 133.) Also by *doubling* or *tripling* them, we Square or Cube their Numbers ; (by 134) or by dividing by 2, 3, &c. you extract the *Square*, *Cubic*, &c. Root of their Numbers, (by 135.)

142. Now such a Table or Canon of *Logarithmic Numbers* has been contrived and composed by our late Mathematicians, and are in every one's Hands for Use. I suppose I scarce need tell the Reader that Lord *Napier* (a *Scotch* Nobleman) invented, and together with the Assistance of our Countryman Mr. *Henry Briggs*, calculated and compleated the Canon in present Use. The Labour of doing this was prodigious in the Way they took for it, but of late, easier and more concise Methods have been invented, of which more hereafter.*

143. That the Reader may have some Idea of the Method they took for this Purpose, he must consider that 1, 10, 100, 1000, 10000, 100000, &c. are a Series of Numbers in Geometrical Progression, whose common Ratio is 10 ; and a Series of Numbers in Arithmetical Progression adapted to them as Logarithms will stand as below.

A.	0.	1.	2.	3.	4.	5.	&c.
G.	1.	10.	100.	1000.	10000.	100000.	&c.

144. If now we suppose the common Ratio 10 to be divided into 10000000 equal Parts, or *Ratiunculae*, then since the Logarithm of 1 to 10 is 1, this Logarithm or Unity 1, will also be divided into 10000000 equal Parts, or *Decimals* ; of which half the Number, viz. 0,5000000 will be the Logarithm of the Mean Proportional between 1 and 10, which let us call A.

	Numb.	Logarithms.
Then will the Logarithms be for	1	: 0,0000000
	A	: 0,5000000
	10	: 1,0000000

145.

* Several other Methods of constructing a Canon of Logarithms will be delivered when we come to treat of *Algebra* and *Fluxions* ; this we have here given, stands first in Order, and rises immediately from the Principles of *common Arithmetic*.

145. In like Manner, a Mean Proportional between A and 10, call B, and its Logarithm will be half the Sum of the Logarithms of A and 10; and so

The Logarithms will be for

{	A	:	0,5000000
	B	:	0,7500000
	10	:	1,0000000

146. Also between 1 and A, and A and B, you find Mean Proportionals and their Logarithms, and thus you may conceive the Process for every one of the 10000000 Means; among which you'll find *eight Means* which will be so near the same with our eight Digits 2, 3, 4, 5, 6, 7, 8, 9, that the Difference will be wholly inconsiderable, and also their Logarithms, which will be as below, *viz.*

	Numb.	Logarithms.	Numb.	Logarithms.
Thus, {	1	: 0,0000000	6	: 0,7781513
	2	: 0,3010300	7	: 0,8450980
	3	: 0,4771213	8	: 0,9030900
	4	: 0,6020600	9	: 0,9542425
	5	: 0,6989700	10	: 1,0000000

147. That is, since there are 10000000 Mean Proportionals between 1 and 10, the Number 2 will be the 3010300th of these; so the Number 3 will be the 4771213th; the Number 5 will be the 6989700th, and so of the Rest. Also the Ratio or Distance of 4 from Unity being twice as great as the Distance of 2, its Logarithm is twice as big, and for the same Reason the Logarithm of 9 is twice as big as the Logarithm of 3; and the Logarithm of 8, three Times as great as the Logarithm of 2; and so on.

148. In like Manner, the Logarithm for all the Numbers between 10 and 100, 100 and 1000, and so on to 100000, denote the Places or Distances of those Numbers in a Scale of Geometrical Proportionals, consisting of 10000000, 20000000, 30000000, &c. Terms. Thus 73 is the 18633229th Term; 743 is the 28709888th Term; and 9745 is the 39887818th Term in the Scale or Series of 40000000.

149. But since we make the Exponent or Logarithm of 1 to 10, to be 1; that of 1 to 100, 2; &c. (by 143) therefore these

these Logarithms must be looked upon as *Decimal Numbers*, and only the first Figure Integral; which is called the Index; and they are thus expressed.

$$\text{viz. } \left\{ \begin{array}{l} 3 : 0,4771213 \\ 73 : 1,8633229 \\ 743 : 2,8709888 \\ 9745 : 3,9887818 \end{array} \right.$$

150. And here you observe the Index of the Logarithm is *less by Unity* than the Number of Figures in that Number of which it is the Logarithm, the Reason of which is very plain from (143) and what has been since delivered. N. B. *In reading, this Table of Logarithms should lie before the Eye for Inspection.*

151. If a Number consist of the same Figures, whether it be *integral, mixed, or pure Decimals*, the Logarithm will still be the same, except the *Index, which will be always less by 1, than the Number of Places in the Integral Part* (149). And when the Number is purely Decimal, the Indexes will also be expressed Decimally, all which will be clear by the Examples in the following Table.

	Numbers	Logarithms.
N. B. As many as the Decimal Index is less than 9, so many Cyphers are prefixed to the Decimal Numbers, as is here evident.	9541	: 3,9795939
	954,1	: 2,9795939
	95,41	: 1,9795939
	9,541	: 0,9795939
	0,9541	: ,9,9795939
	0,09541	: ,8,9795939
	0,009541	: ,7,9795939

152. It remains now that we shew how commodiously the Operations of common Arithmetic are performed by Logarithms, and first,

Of MULTIPLICATION by LOGARITHMS.

The Rule for the Operation is this, *add together the Logarithms of the Factors, the Sum is the Logarithm of the Product.* (By 132) But the Difficulty consists in finding the proper Indices to the Sums; for which observe the following Particulars. (1.) If the Indices are both *integral*, the Sum is so too. (2.) If one be Integral, and the other Decimal, the Sum, if under 10, will

I be

be Decimal; if juſt 10, or more than 10, caſt away 10, and the Remainder is Integral. (3.) If the Indices are both Decimal, and the Sum above 10, caſt away 10, and the Remainder will be Decimal; and then the Cyphers to be prefixed to the Decimal Product, will be as many as ſuch an Index is leſs than 9. See the following Examples.

153.

Examples of INTEGERS.

Example I.

$$\begin{array}{r} \text{Multiply} \quad 12 = 1,079181 \\ \text{By} \quad 8 = 0,903090 \\ \hline \end{array}$$

$$\text{The Product } 96 = 1,982271$$

Example II.

$$\begin{array}{r} \text{Multiply} \quad 526 = 2,720986 \\ \text{By} \quad 100 = 2,000000 \\ \hline \end{array}$$

$$\text{The Product } 52600 = 4,720986$$

Example III.

$$\begin{array}{r} \text{Multiply} \quad 987600 = 5,994581 \\ \text{By} \quad 517 = 2,713490 \\ \hline \end{array}$$

$$\text{The Product } 510589200 = 8,708071$$

154.

Examples of mixed Numbers.

Example I.

$$\begin{array}{r} \text{Multiply} \quad 12,4 = 1,0934217 \\ \text{By} \quad 3,6 = 0,5563025 \\ \hline \end{array}$$

$$\text{The Product } 44,64 = 1,6497242$$

Example II.

$$\begin{array}{r} \text{Multiply} \quad 36,5 = 1,5622929 \\ \text{By} \quad 0,00019 = ,6,2787536 \\ \hline \end{array}$$

$$\text{The Product } 0,006935 = ,7,8410465$$

Example III.

$$\begin{array}{r} \text{Multiply} \quad 0,762 = ,9,8819550 \\ \text{By} \quad 570 = 2,7558748 \\ \hline \end{array}$$

$$\text{The Product } 434,34 = 2,6378298$$

Example IV.

$$\begin{array}{r} \text{Multiply} \quad 0,0097 = ,7,9867717 \\ \text{By} \quad 0,00021 = ,6,3222193 \\ \hline \end{array}$$

$$\text{The Product } 0,000002037 = ,4,3089910$$

155. DIVISION of *Integers and Decimals* by LOGARITHMS.

The Rule. $\left\{ \begin{array}{l} \text{From the Logarithm of the Dividend,} \\ \text{Subtract the Logarithm of the Divisor;} \\ \text{The Remainder is the Logarithm of the Quotient.} \end{array} \right.$

Example I. $\begin{array}{rcl} \text{Divide} & 44,64 & = 1,6497242 \\ \text{By} & 12,4 & = 1,0934217 \\ \hline \text{Quotient} & 3,6 & = 0,5563025 \end{array}$

Example II. $\begin{array}{rcl} \text{Divide} & 310 & = 2,4913617 \\ \text{By} & 4,275 & = 0,6309361 \\ \hline \text{Quotient} & 72,51457 & = 1,8604256 \end{array}$

Example III. $\begin{array}{rcl} \text{Divide} & 434,34 & = 2,6378298 \\ \text{By} & 7,62 & = 9,8819550 \\ \hline \text{Quotient} & 570 & = 2,7558748 \end{array}$

Example IV. $\begin{array}{rcl} \text{Divide} & ,006935 & = ,78410465 \\ \text{By} & 36,5 & = 1,5622929 \\ \hline \text{Quotient} & ,00019 & = ,62787536 \end{array}$

Example V. $\begin{array}{rcl} \text{Divide} & ,000002073 & = ,43089910 \\ \text{By} & ,00021 & = ,63222193 \\ \hline \text{Quotient} & ,0097 & = ,79867717 \end{array}$

156. As the Operation of such Decimal Numbers as contain *single or compound Repetends* is most easily performed by *Logarithms*, (see *Inst.* 90) so we shall here proceed to that Business, having first premised, that if one Number *A*, be to be divided by another *B*, the Quotient will be the same as when Unity is divided by the Number *B*, and the Quotient multiplied by the other *A*; thus $4 \div 12 \left(3 = \frac{3}{4} \times 12 \right)$; now if from the Logarithm of Unity or 0, you subtract the Logarithm of any Number, the Remainder is called the *Arithmetical Compliment* of that Number. Thus from the Logarithm of Unity = 0,0000000 take the Logarithm of 12,4 = 1,0934217 remains the Arithmetical Compliment = ,89065783 which is plainly nothing more than the Logarithm of the Fraction

$\frac{1}{12,4}$; if therefore

To the Logarithm of $44,64 = 1,6497242$
 You add the Arithmetical Compliment of $12,4 = 8,9065783$
 The Sum is the Logarithm of $3,6 = 0,5563025$
 The same as in Example I. of Division (155).

157. Any Digit multiplied by 10 and divided by 9, becomes a *Repetend*; thus $6 \times 10 = 60$, and $9 \mid 60 (= 6,666\bar{6})$, &c. $= 6,6$; and the same in Decimals $0,6 \times 10 = 6$, and $9 \mid 6 (= 0,6$. Also any Number multiplied by Unit with as many Cyphers annexed as it contains Places, and then divided by as many Nines, becomes a *compound Repetend*. Thus $23 \times 100 = 2300$, and $99 \mid 2300 (= 23,2\bar{3})$, and $527 \times 1000 = 527000$, and $999 \mid 527000 (= 527$; and so of others.

158. Hence since the Logarithms of $\frac{10}{9}$, $\frac{100}{99}$, $\frac{1000}{999}$, &c. are $0,0457575$, $0,0043648$, $0,0004345$, &c. therefore we easily obtain the Logarithms of any pure, single, or compound Repetend.

Example. Required the Logarithm of $\frac{6}{9}$?

To the Logarithm in the Table for $6 = 0,7781512$
 Add the Logarithm of $\frac{10}{9} = 0,0457575$
 The Sum is the Logarithm of $\frac{6}{9} = 0,8239087$

And because it may be of Use sometimes, I have here subjoined a Table of the Logarithms of all the Nine Digits *perpetually circulating*.

1	$= 0,0457575$
2	$= 0,3467875$
3	$= 0,5228787$
4	$= 0,6478175$
5	$= 0,7447275$
6	$= 0,8239087$
7	$= 0,8908555$
8	$= 0,9488475$
9	$= 1,0000000$

159. In the same Manner we proceed for the Logarithms of pure compound Repetends.

Example 1. Required the Logarithm of the Repetend $\frac{24}{99}$?

To the Tabular Logarithm of $24, = 1,3802112$
 Add the Logarithm of $\frac{100}{99} = 0,0043648$
 The Sum is the Logarithm of $\frac{24}{99} = 1,3845760$

Example 2. Required the Logarithm of $\frac{36,5}{999}$?

To the Tabular Logarithm of $36,5 = 1,5622929$
 Add the Logarithm of $\frac{1000}{999} = 0,0004345$
 The Sum is the Logarithm of $\frac{36,5}{999} = 1,5627274$.

160. Now with Respect to *mixed Repetends*, as $2,\dot{6}$, $2,7\dot{3}3$, $7\dot{7}5,\dot{6}$, &c. it is evident (by 157) that $2,\dot{6} = 2,\frac{6}{9}$, and that $2,7\dot{3}3 = 2,7\frac{53}{99}$, and $7\dot{7}5,\dot{6} = 7\frac{256}{999}$ and so on; but $2,\frac{6}{9} = \frac{24}{9}$, and this multiplied by 9, becomes barely 24; but any Number multiplied by 9, is the same as when multiplied by 10, and once subtracted; whence $2,\dot{6} \times 10, - 2,\dot{6} = 24$. Hence this *general Rule* is deduced.

From the mixed Repetend multiplied by 10, subtract itself; or (which is the same Thing) from any mixed Repetend subtract the terminate Part, and to the Logarithm of the Remainder, add the Arithmetical Complement of as many Nines as there are Places of Figures in the Repetend, and the Sum will be the Logarithm of the said mixed Repetend.

Example 1. Required the Logarithm of $2,\dot{6}$?

From the given Repetend $\text{——— } 2,\dot{6}$
 Subtract the terminate Part $\text{——— } 2$
 To the Logarithm of the Remainder $2,4 = 0,3802112$
 Add the Arithmetical Complement of $9 = 0,0457575$
 The Sum is the Logarithm of $\text{——— } 2,\dot{6} = 0,4259687$.

Example 2. Required the Logarithm of $2,7\dot{3}3$?

From the given Repetend $\text{——— } 2,7\dot{3}3$
 Subtract the terminate Part $\text{——— } 27$
 Then to the Logarithm of the Remainder $2,726 = 0,4355258$
 Add the Arithmetical Complement of the }
 Logarithm of $\text{——— } \text{——— } \} 99 = 0,0043648$
 The Sum is the Logarithm of the Repe- }
 tend $\text{——— } \text{——— } \text{——— } \} 2,7\dot{3}3 = 0,4398906$.

Example 3. Required the Logarithm of $7\dot{7}5,\dot{6}$?

From the Repetend $\text{——— } 7\dot{7}5,\dot{6}$
 Subtract the constant Part $\text{——— } 7$
 To the Logarithm of the Remainder $724,9 = 2,8602781$
 Add the Arithmetical Complement of $999 = 0,0004345$
 The Sum is the Logarithm of $\text{——— } 7\dot{7}5,\dot{6} = 2,8607126$.

161. The Learner is now prepared to work any of the common Rules of Arithmetic, where the Operations are tedious or dif-

difficult, in a very easy and concise Manner, by *Logarithms*, of which take the following Examples.

Example 1. In Duodecimal Multiplication.

F. In. F. In.

Required the Area of 9 : 10 by 8 : 8?

F. In.

Add { The Logarithm of 9 : 10 = 9,83 = 0,9927008
 { To the Logarithm of 8 : 8 = 8,0 = 0,9378521

Sum is the Logarithm of the } *F. In.*
 Area required. } 85 : 2 $\frac{3}{4}$ = 85,7 = 1,9305529.

As *Division* is only the Reverse, it needs no Example.

162. Example 2. In the *Rule of Three Direct*.

If 2 C. 3 Qrs. 21 lb. of Sugar	—	2,9375 =	0,4679778
Cost 6l. 1s. 8d.	—	6,083 =	0,7841316
What will 12 C. 2 Qrs. cost?	—	12,5 =	1,0969100
			<u>1,8810416</u>
Answer, 25l. 17s. 8d $\frac{3}{4}$.	—	25,8864 =	1,4130638.

Note, here the Logarithm of the first Number is subtracted from the Sum of both the others; but a more concise Way is to take the *Arithmetical Complement* of the first (which we denote by *A. C.*) and then the Whole is performed by *one Addition*.

Example 3. At one Operation.

If $\frac{1}{2}$ C. of Tobacco (<i>A. C.</i>)	—	0,5 =	0,3010300
Cost 4l. 17s. 8d.	—	4,63 =	0,6658935
What will 7 lb. cost?	—	0,0625 =	8,7958800
Answer, 11s. 7d.	—	0,57916 =	9,7628035.

163. Example 4. *Inverse Proportion*, at one Operation.

If Wheat be 6s. 4d. per Bushel	—	6,3 =	0,8016325
And the Penny White Loaf weigh 7 $\frac{3}{4}$ oz.	—	7,75 =	0,8893017
What is the Weight, at 3s. 10d. p. Bushel?			
(<i>A. C.</i>) — — — — —		3,83 =	9,4164234
Answer, 12 Oz. 16 Pwt. 2 Grs.	—	12,8043 =	1,1073576.

Here

Here we take the Arithmetical Complement (*A. C.*) of the third Term, the Reason of which is evident from (156).

164. EXTRACTION of ROOTS by *Logarithms*.

Example 1. Required the *Square Root* of 2830,24?

The Logarithm thereof is --- --- 3,4518232
 One Half is the Logarithm of the Root --- 53,2 = --- 1,7259116

Example 2. What is the *Square Root* of 14,8?

The Logarithm of that Number is --- --- 1,1663314
 Half of which is the Logarithm of the Root --- 3,8297 = --- 0,5831657

165. Example 3. Required the *Cube Root* of 1,728?

The Logarithm of --- --- 1,728 = 0,2375437
 A third of which is the Logarithm of the Root --- 1,2 = --- 0,0791812

Example 4. What is the *Cube Root* of 0,27388?

The Logarithm thereof is --- --- 9,4407132
 $\frac{1}{3}$ Part thereof is the Logarithm of --- 0,6509 = --- 9,8135710
 The *Cube Root* required.

N. B. In Decimal Numbers, where the Indices are Decimal, in extracting the *Square Root* you add 10 to the Index; for the *Cube Root* 20; for the *Biquadrate Root* 30; and so on.

Example 5. Required the several Roots of the last Number, for Instance.

The Logarithm of the Number 0,27388 = 9,4407132
 The Half is the Logarithm of the } 0,52523 = 9,7023566
 Square Root --- }
 A third Part, of the *Cube Root* --- 0,6509 & = 9,8135710
 A Fourth, the *Biquadrate* --- 0,7247 & = 9,8601783
 A Fifth, the *Sur-solid Root* --- 0,7729 & = 9,8881426

Thus you see how extremely easy it is to extract any Root out of any Number by Logarithms, and especially in such Cases where by the common Rules the Operation is very laborious and difficult, and sometimes quite impracticable.

The Reason of extracting Roots by Logarithms, is evident from what we have observed of these Numbers in (135). Since to Square or Cube any Number, is only to multiply it by its

it's self once, or twice, we thought it needless to give any Examples in Logarithms of that Affair; especially, since they are only the Reverse of the foregoing, and evident from (134.)

166. To find a *Mean Proportional* between any two Numbers, as 3, and 243.

Add the Logarithm of the Numbers	}	3, =	0.4771212
		243, =	2.3856063
The Sum is			<u>2.8627275</u>
Half of which is the Logarithm of	}	27, =	1.4313637
the Mean required, viz.			

For 3 : 27 :: 27 : 243.

167. To find two Mean Proportionals between any two Numbers, as 27, and 729.

To double the Logarithm of the first	}	27, =	1.4313638
Number			1.4313638
Add the Logarithm of the last		729, =	2.8627275
The Sum is			<u>5.7254551</u>
A Third of which is the Logarithm	}	81, =	1.9084850
of the <i>first Mean</i> , viz.			
To this add the Logarithm of the last	}	729, =	2.8627275
Number again, viz.			
The Sum is			<u>4.7712125</u>
Half that is the Logarithm of the se-	}	243, =	2.3856062
cond Mean required.			

For 27 : 81 :: 243 : 729. Or thus, having found the *first Mean*, as here 81, you know then the *Ratio* of the Series 27) 81 (= 3 the Ratio, therefore from the Logarithm of the *first Mean*, subtract the Logarithm of the first given Number, the Remainder is the Logarithm of the Ratio; which add to the Logarithm of the *first Mean*, the Sum is the Logarithm of the *second Mean*; and again, added to the Logarithm of the Second, it gives the Logarithm of the *third Mean*, and so on. All which is evident from what we first premised concerning the Nature of a Geometrical Series, and Logarithms adapted thereto. See (130, 131, &c.)

We might now have proceeded to the Computations of *Interest*, *Annuities*, &c. which are best performed by Logarithms, but

but as the *Theorems* or *Canons* for this Purpose must be raised by an *Algebraic Process*, we must defer this Business till we treat of that Science in the next ensuing Part: Also the Use of Logarithms in *Navigation*, and other Mathematical Arts, will be largely shewn when we come to treat of those Subjects. What we have done at present being sufficient for all the common Parts of Arithmetic, where *Numerical Calculations* only are concerned.

And as to the *Natural* or *Hyperbolical Logarithms* we shall refer them to the Doctrine of Fluxions, where we shall shew how they are made, and how these we here treat of are derived from them: Also *Logistical Logarithms* will be fully treated of in the Practical Part of Astronomy, where they are used; and *Tables* of every Sort of Logarithms will be supplied in their proper Places.

INSTITUTIONS

OF

ALGEBRA.

CHAP. I.

168. **A**LGEBRA is a Kind of *specious Arithmetic*, as we here make Use of *Species*; i. e. Symbols or Letters to represent Quantities of every Kind, as well known as unknown. And it is customary to represent *known Quantities* by the first Letters of the Alphabet *a, b, c, d, &c.* and *unknown ones* by the last Letters, *x, y, z.*

169. The Terms of an Algebraic Expression are connected under all their various Relations by proper Symbols or Characters, as mentioned in (22.) but we are here to consider the two principal Symbols $+$ and $-$ in a more extensive View than we did there, for they are designed to represent any two contrary Modes, Qualities, or Actions, &c. In short, what ever is represented by the *affirmative Sign* $+$, as $+a$; the Contrary is represented by the *negative Sign* $-$, as $-a$.

Thus if $+a$ $\left\{ \begin{array}{l} \text{added above,} \\ \text{signifies any} \end{array} \right\}$ to the Right, $\left\{ \begin{array}{l} -a \text{ signi-} \\ \text{fies} \end{array} \right\}$ subtracted below, $\left\{ \begin{array}{l} \text{to the Left,} \\ \text{backwards.} \end{array} \right\}$
 Thing forwards,

If $+a$ $\left\{ \begin{array}{l} \text{Increase,} \\ \text{signifies any} \end{array} \right\}$ Gravity, $\left\{ \begin{array}{l} -a \text{ signi-} \\ \text{fies any} \end{array} \right\}$ Decrease, $\left\{ \begin{array}{l} \text{Levity,} \\ \text{Money owing,} \\ \text{Motion downward.} \end{array} \right\}$
 Money due, Motion upwards,

And so on in every Kind of Contrariety. And two such Quantities connected together in any Case destroy each other's Effect, or are equal to Nothing, as $+a - a = 0$. Thus, if a Man has but 10*l.* and at the same time owes 10*l.* he is worth *Nothing*.

170. If the first Quantity or Term be affirmative we neglect the Sign $+$, as $a + b$ instead of $+a + b$. If an Algebraical Quantity consist of two Terms, it is called a *Binomial*, as $a + b$; if of three Terms, a *Trinomial*, as $a + b + c$. If there be more Terms, it is called a *Multinomial*. All which are *compound* Quantities. *Simple* Quantities consisting of one Term only, as $+a$, $+ab$, $+abc$.

171. When simple Quantities are to be multiplied together we do not, generally, use the Symbol \times , but place them together without; as ab instead of $a \times b$, and abc for $a \times b \times c$; when compound Quantities are to be represented as multiplied, then a Line is drawn over the Factors connected with the proper Sign \times ; as $\overline{a + b} \times c$, $\overline{a + x} \times \overline{b - y}$.

172. When any Number of Figures are prefixed to the Terms of an Algebraic Quantity, they are called *Coefficients*, and shew how often the Quantity is to be taken; as $3a$, $5bc$, $2a + 5b$, &c. and when no Number is prefixed, *Unity* is always understood, tho' not expressed, for the *Coefficient*; thus a is the same as $1a$, and bc as $1bc$, since any Thing multiplied by *Unity* is still the same.

173. Quantities are said to be *like*, or *similar*, that are represented by the same Letter or Letters equally repeated; thus $+3a$ and $-5a$ are *like*; but a and b , or a and aa are *unlike*. What other Definitions and Symbols are used in *Algebra*, will be explained in their proper Places.

CHAP. II.

ADDITION.

174. **I**N the ADDITION of Algebraic Quantities there are three CASES, as follow.

CASE I. To add Quantities that are *like*, and have *like* Signs.

R U L E.

Add together the Coefficients, to their Sum subjoin the common Quantity, or Letters, and prefix the Sign where necessary.

EXAMPLES.

To $5a$	$3a - 5b$	$a + 2b - 3c$
Add $3a$	$a - 2b$	$3a + b - 4c$
Sum $8a$	$4a - 7b$	$4a + 3b - 7c$

To $ab - 5b + 3x - 21y + 15z + 7$
Add $4ab - b + 7x - 4y + 9z + 10$
Sum $5ab - 6b + 10x - 25y + 24z + 17$

175. CASE II. To add Quantities that are *like*, but have *unlike* Signs.

R U L E.

Subtract the lesser Coefficient from the greater, to the Remainder prefix the Sign of the greater, and subjoin the common Letter or Quantities.

EXAMPLES.

To $-4a$	$-5b - 6c - 9x$
Add $+7a$	$+3b + 8c + 5x$
Sum $+3a$	$-2b + 2c - 4x$

To $a + 6x - 5y + 8$	$2a - 2b + 13$
Add $-5a - 4x + 4y - 3$	$-2a + 2b - 10$
Sum $-4a + 2x - y + 5$	$0 \quad 0 \quad +3$

We proceed here according to Custom, but it is with some Impropriety that we talk of *adding* Quantities with unlike Signs.

since the Operation does wholly consist in *Subtraction*, as it must from the Nature of the Signs (169, 173.)

176, CASE III. To add Quantities that are unlike,

RULE.

Set them all down one after another, with their Signs and Coefficients prefixed.

EXAMPLES.

$$\begin{array}{rcl}
 \text{To } 2a & 3a & 2a - 5bc \\
 \text{Add } 3b & -4x & 2x + 7 \\
 \hline
 \text{Sum } 2a + 3b & 3a - 4x & 2a - 5bc + 2x + 7
 \end{array}$$

$$\begin{array}{rcl}
 \text{To } 4a + 4b + 3c - 9 & & \\
 \text{Add } -4x - 4y + 3z & & \\
 \hline
 \text{Sum } 4a + 4b + 3c - 4x - 4y + 3z - 9
 \end{array}$$

CHAP. III.

SUBTRACTION.

177. **S**INCE the Sign $-$ is just opposite to the Sign $+$, and *Subtraction* just contrary to *Addition*, therefore to subtract a Quantity is the very same Thing as to *add* the same Quantity with the contrary Sign. Or thus,

$$\begin{array}{rcl}
 \text{If I am to receive } 3l. & \text{---} & + 3a \\
 \text{or to pay } 3l. & \text{---} & - 3a \\
 \text{The Odds or Difference to me, is} & \text{---} & + 6a
 \end{array}$$

$$\begin{array}{rcl}
 \text{Or, if this Day I have } 10l. & \text{---} & + 10a \\
 \text{And Yesterday I owed } 3l. \text{ more?} & & \\
 \text{than I had to pay,} & \text{---} & - 3a \\
 \text{The Odds in my Fortune is } 13l. & \text{---} & + 13a \\
 \text{better to-Day than Yesterday,} & \text{---} &
 \end{array}$$

Whereas it would have been but 10 *l.* better, had not the negative 3 *l.* been subducted. Therefore we have a

GENERAL RULE.

178. Change the Signs of the Quantity to be subtracted, and then add them both together, by the Rules of the preceding Chapter; the Sum arising by such Addition is the true Remainder.

EXAMPLES.

From	$+ 8a$	$4a - 7b$
Take	$+ 3a$	$3a - 5b$
Remains	$8a - 3a = 5a$	$a - 2b$

From	$3a$	$- 2b + 2c - 4x$
Take	$- 4a$	$- 5b - 6c - 9x$
Remains	$+ 7a$	$3b + 8c + 5x$

From	3	$2a - 3x + 5y - 6$
Take	$2a - 2b + 13$	$6a + 4x + 5y + 4$
Remains	$- 2a + 2b - 10$	$- 4a - 7x \quad 0 \quad - 10$

CHAP. IV.

MULTIPLICATION.

179. **I**N Multiplication there is one General Rule for the Signs; viz. When the Signs of the Factors are like, (that is, both +, or both —) the Sign of the Product is +; but when the Signs of the Factors are unlike, the Sign of the Product is —. This General Rule will resolve it self into Four particular Cases, which we shall illustrate separately in simple Quantities.

180. **CASE I.** When any positive Quantity as $+ a$ is multiplied by a positive Number $+ n$, the Meaning is, That $+ a$ is to be taken so many times as there are Units in n ; and the Product is evidently n times a , or na .

EXAMPLES.

Multiply	$+ a$	$2a$	$5bx$	$9dc$
By	$+ n$	$3b$	7	$4y$
Product	na	$6ab$	$35bx$	$36ydc$

CASE

181. CASE II. When $-a$ is multiplied by n , then $-a$ is to be taken as often as there are Units in n , and the Product must be n times $-a$, or $-na$.

EXAMPLES.

Multiply	$-a$	$-2a$	$-5bx$	$-9dc$
By	$+n$	$3b$	7	$4y$
Product	$-na$	$-6ab$	$-35bx$	$-36dcy$

182. CASE III. As Multiplication by a *positive* Number implies a *repeated Addition*, so Multiplication by a *Negative* implies a *repeated Subtraction*; and therefore when $+a$ is to be multiplied by $-n$, it means only that $+a$ is to be subtracted as often as there are Units in n ; and therefore the Product being *negative* must also be $-na$.

EXAMPLES.

Multiply	$+a$	$2a$	$5bx$	$9dc$
By	$-n$	$3b$	-7	$-4y$
Product	$-na$	$-6ab$	$-35bx$	$-36dcy$

183. CASE IV. When $-a$ is to be multiplied by $-n$, then $-a$ is to be subtracted as often as there are Units in n ; but to subtract $-a$ is equivalent to *adding* $+a$, (177.) therefore this Case is the same in Effect with the Product, and is evidently $+na$.

EXAMPLES.

Multiply	$-a$	$-2a$	$-5bx$	$-9dc$
By	$-n$	$-3b$	-7	$-4y$
Product	$+na$	$+6ab$	$+35bx$	$+36dcy$

184. When the Factors are one or both *compound Quantities*, or consist of several Parts; you must multiply every Part of the *Multiplicand* by each Part of the *Multiplier*; and then add all the *Products* into one *Sum*; and that *Sum* shall be the *Product* required.

EXAM-

EXAMPLES.

$$\begin{array}{r} \text{Mult. } a + b \quad a - b + c \quad a - 2y + 5z - 6 \\ \text{By } a \quad -b \quad 8 \end{array}$$

$$\text{Prod. } \underline{aa + ab} \quad \underline{-ab + bb - bc} \quad \underline{8a - 16y + 40z - 48}$$

$$\begin{array}{r} \text{Mult. } 4a + b \quad 2a - 4b \\ \text{By } a - 2b \quad 2a + 4b \end{array}$$

$$\underline{4aa + ab} \quad \underline{-8ab - 2bb}$$

$$\underline{4aa - 8ab} \quad \underline{8ab - 16bb}$$

$$\text{Product } \underline{4aa - 7ab - 2bb}$$

$$\underline{4aa \quad 0 \quad -16bb}$$

$$\begin{array}{r} \text{Mult } xx - ax \quad aa + ab + bb \\ \text{By } x + a \quad a - b \end{array}$$

$$\underline{xxx - axx} \quad \underline{+ axx - aax}$$

$$\underline{aaa + aab + abb} \quad \underline{-aab - abb - bbb}$$

$$\text{Prod. } \underline{xxx \quad 0 \quad -aax}$$

$$\underline{aaa \quad 0 \quad 0 \quad -bbb}$$

185. I shall here insert one Example more to shew the Reason of the common Method of proving the Work of Multiplication in Numbers, by *casting out the Nines in the Factors, and Product of their Remainders*, and also out of the general Product, to observe the Equality of the Remainders. (See *Inst.* 55.) We shall take the first Example in (*Inst.* 54,) where $1750 \times 76 = 133000$. Therefore

$$\begin{array}{r} \text{Mult. } 9a + c \quad = 1750 = \overline{9 \times 194} + 4. \\ \text{By } 9b + d \quad = 76 = \overline{9 \times 8} + 4. \end{array} \left\{ \begin{array}{l} a = 194 \\ c = 4 \\ b = 8 \\ d = 4 \end{array} \right.$$

$$\underline{81ab + 9bc} \quad 10500$$

$$\underline{+ 9ad + cd} \quad 12250$$

$$\text{Prod. } \underline{81ab + 9bc + 9ad + cd = 133000}$$

Now

Now here we are to observe, that any Number divided by 9 leaves the same Remainder as when the Figures of that Number are added together, and the Nines cast out as often as they occur; thus $76 \div 9$, leaves 4; and $7 + 6 = 9 + 4$. Also $1750 \div 9$ leaves 4; and $1 + 7 + 5 + 0 = 9 + 4$: Lastly, $133000 \div 9$ leaves 7; and $1 + 3 + 3 = 7$. And thus it will be for every other Number.

Again, 'tis evident, that the Sum of the three first Terms of the *Algebraic Product* divided by 9 leaves no Remainder, what Remainder therefore is, must be from the fourth Term cd divided by 9; but this Term is always the Product of the two Remainders of the Factors, c and d ; consequently, if the Product of these Remainders, divided by Nine, leave the same Remainder as the Figures of the Product of the two Factors when added together, and the Nines cast out, the Work will be right; provided no Error be committed that amounts to Nine, or any Multiple of Nine. N.B. I have inserted this Demonstration of the Process here, as it is an *Algebraic One*, and what has been desired by many Persons, who have sought for it in vain in Books of *Aithmetic* hitherto published.

CHAP. V.

DIVISION.

168. **I**N DIVISION of *Algebraic Quantities* the Rule for the Signs is the same as in *Multiplication*; viz. If the Signs of the Divisor and Dividend are like, the Sign of the Quotient must be +; but if they are unlike, the Sign of the Quotient must be —. This is evidently deduced from the Rule in *Multiplication* (179.) if it be considered, that the Quotient must be such a Quantity as multiplied by the Divisor, shall give the Dividend.

And this is a General Rule for all Operations in *Division*, which are only the Reverse of *Multiplication*, and will be easy to understand when illustrated by Examples, as follow.

$$a) na(n; -a) - na(+n; -a) + na(-n;$$

$$2a) 6ab(3b; a) aa + ab(a + b$$

$$\begin{array}{r} 6ab \\ \hline \dots \end{array} \quad \begin{array}{r} aa \\ \hline \dots \end{array} \quad \begin{array}{r} ab \\ \hline \dots \end{array}$$

$$4a + b) 4aa - 7ab - 2bb(a - 2b$$

$$\begin{array}{r} 4aa + ab \\ \hline - 8ab - 2bb \\ - 8ab - 2bb \\ \hline \dots \end{array}$$

$$2a - 4b) 4aa - 16bb(2a + 4b$$

$$\begin{array}{r} 4aa - 8ab \\ \hline + 8ab - 16bb \\ + 8ab - 16bb \\ \hline \dots \end{array}$$

$$a - b) aaa - bbb(aa + ab + bb$$

$$\begin{array}{r} aaa - aab \\ \hline + aab - bbb \\ + aab - abb \\ \hline + abb - bbb \\ + abb - bbb \\ \hline \dots \end{array}$$

$$3a - 6) 6aaaa - 96(2aaa + 4aa + 8a + 16$$

$$6aaaa - 12aaa$$

$$12aaa - 96$$

$$12aaa - 24aa$$

$$24aa - 96$$

$$24aa - 48a$$

$$48a - 96$$

$$48a - 96$$

187. In dividing, when you come to a Remainder of one Term, it is commonly set down with the Divisor under it, after the other Terms, which together make the whole Quotient. Thus

$$a + x) aa + xx (a - x + \frac{2xx}{a+x}$$

$$aa + ax$$

$$- ax + xx$$

$$- ax - xx$$

$$2xx$$

188. It sometimes happens, that the same Letter or Quantity is found in all the Terms of the Divisor and Dividend, and that there is obviously some common Measure to the Coefficients of the Terms; when this is the Case, you expunge the common Quantity, divide by the common Measure, and place the Divisor so reduced, under the new Dividend in the Quotient. Thus
 $2b) ab + bb \left(\frac{a+b}{2} \right.$, here Unity, or 1 is the common Measure. Again,

$$20ad) 10ab + 15ac \left(= \frac{2b+3c}{4d} \right.$$

$$\text{Thus } 12ab) 30ax - 54ay \left(= \frac{5x-9y}{2b} \right.$$

$$\text{And } 4aa) 8ab + 6ac \left(= \frac{4b+3c}{2a} \right.$$

OF FRACTIONS.

189. **A**lgebraic Fractions are of the same Nature, and require the same Management as those of Numbers, for

suppose $a = 2$, and $b = 3$; then $\frac{2}{3} = \frac{a}{b}$, a proper Fraction;

or $\frac{3}{2} = \frac{b}{a}$, an improper Fraction: and $2\frac{2}{3} = a + \frac{a}{b}$ a mixed fractional Quantity.

190. A mixed Quantity is reduced to an improper Fraction by the Rule in (Inst. 68.) viz. Multiply the integral Part by the Denominator of the fractional Part, to which Product add the Numerator; and the Sum will be a new Numerator, under which write the Denominator, and it is the improper Fraction required. Thus

$a + \frac{a}{b}$ becomes $\frac{ab + a}{b}$; $a + b + \frac{x}{z}$ is $\frac{az + bz + x}{z}$; and

$a - x + \frac{aa - ax}{x} = \frac{ax - xx + aa - ax}{x} = \frac{aa - xx}{x}$; so

$a - x + \frac{2xx}{a+x} = \frac{aa + xx}{a+x}$.

191. Fractions of different Denominations are reduced to the same Denomination thus; Multiply all the Denominators together for a common Denominator, and each Numerator by every Denominator but its own, for a new Numerator. (See Inst. 69.) So

$\frac{a}{b}, \frac{b}{c}, \frac{c}{d}$ will become $\frac{acd}{bcd}, \frac{bbd}{bcd}, \frac{ccb}{bcd}$. Thus $\frac{a}{b} + \frac{c}{d} + \frac{e}{f}$
 $= \frac{adf}{bdf} + \frac{cbf}{bdf} + \frac{edb}{bdf} = \frac{adf + cbf + edb}{bdf}$.

192. A Fraction is reduced to its lowest Terms by the Rule (in Inst. 66.) for finding a common Divisor; thus the Fraction

$\frac{15ab}{81bx}$ has its common Measure, 3 for the Coefficient, and b for the other Part; and so the Whole is $3b$, by which dividing the Fraction, it is reduced to its lowest Terms of the same Value, viz.

$$\frac{L2}{27x} = \frac{5a}{27x}$$

$\frac{5a}{27x} = \frac{15ab}{81bx}$. Thus $\frac{bbc + bbd}{cd + dd} = \frac{b^2}{d}$; and $\frac{aaa + bbb}{aa - bb} =$
 $\frac{aa - ab + bb}{a - b}$, being divided by $a + b$ the common Measure

of the Numerator and Denominator. *N. B.* It often happens that the same Letter or Letters are contained in every Part or Term of the Fraction, which in such a Case are to be expunged, and the Fraction is thereby reduced to a more simple Form of the

same Value. Thus $\frac{ab + db}{bx} = \frac{a + d}{x}$; and $\frac{25za}{5xz + 15az} =$
 $\frac{5a}{x + 3a}$ by expunging z , and dividing by 5.

193. When Fractions are to be *added, subtracted, multiplied, or divided*, they should be first reduced to one Denomination, and in their lowest Terms, and then the Rules for the Operations

are the same as for *numeral Fractions*. Thus to add $\frac{a}{b}$ to $\frac{c}{d}$, you

reduce them to a common Denomination $\frac{ad}{bd}$, and $\frac{bc}{bd}$, then their

Sum is $\frac{ad + bc}{bd}$ and $\frac{a}{b} + \frac{c}{d} + \frac{d}{e} = \frac{ade + bce + ddb}{bde}$.

194. To *subtract* one Fraction from another, you reduce them to a common Denominator, and then take the Difference of the Numerators, and under-write the common Denominator. Thus

if from $\frac{a}{b}$ you take $\frac{c}{d}$, the Difference is $\frac{a}{b} - \frac{c}{d} = \frac{ad - cb}{bd}$;

from the Integer a take the Fraction $\frac{b}{c}$, the Difference is $a - \frac{b}{c}$,

from $\frac{a + x}{b}$ take $\frac{a - x}{c}$, their remains $\frac{ac + cx}{bc} - \frac{ab - bx}{bc}$,

that is, $\frac{ac + cx - ab + bx}{bc}$.

195. To *multiply* one Fraction by another, you multiply the Numerators one into the other for the Numerator of the Product, and the Denominators multiplied, one into another, give the Denominator of

the Product. Thus $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$; and $\frac{a + b}{c} \times \frac{a - b}{d} =$
 $\frac{aa - bb}{cd}$.

$$\frac{aa - bb}{cd}. \text{ Also } a + \frac{b}{c} \times \frac{d}{e} = \frac{ac + b}{c} \times \frac{d}{e} = \frac{acd + bd}{ce}.$$

$$a \times \frac{b}{c} = \frac{a}{1} \times \frac{b}{c} = \frac{ab}{c}; \text{ for any Integer, } a, \text{ is reduced to the}$$

Form of a Fraction by writing Unity under it, as $\frac{a}{1}$.

196. To divide one Fraction by another, multiply the Numerator of the Dividend by the Denominator of the Divisor, the Product will be the Numerator of the Quotient. Then the Denominator of the Dividend, multiplied by the Numerator of the Divisor, gives the Denominator of the Quotient. Thus $\left(\frac{a}{b}\right) \div \frac{c}{d} \left(= \frac{cb}{ad}; \text{ and } \frac{d}{e}\right)$

$$\frac{acd + bd}{ce} \left(= \frac{acde + bde}{cde} = \frac{ac + b}{c} = a + \frac{b}{c}. \text{ And } \frac{a-b}{d}\right)$$

$$\frac{aa - bb}{cd} \left(= \frac{a + b}{c}, \text{ after Reduction; and } \frac{a + b}{a - b}\right) \frac{a - b}{a}$$

$$\left(= \frac{aa - 2ab + bb}{aa + ab}\right).$$

197. In order to demonstrate the Truth, or shew the Reason, of the foregoing Rules for the Addition, Subtraction, Multiplication and Division of Fractions, we must here premise the following Axioms, or Principles that are in themselves evident Truths; these will be also necessary in most of our future Mathematical Speculations.

198. AXIOM I. Things that are equal to one and the same Thing, are equal to one another.

Thus, if $a = m$, and $b = m$, then $a = b$.

199. AXIOM II. If to equal Things, you add equal Things, the Sums will be equal.

Thus, if to the equal Quantities $a = m$

You add the equal Quantities $b = n$

The Sums will be equal $a + b = m + n$.

200. AXIOM III. If from equal Things $a = m$

You subtract equal Things $b = n$

The Remainders will be equal, viz. $a - b = m - n$.

201. AXIOM IV. *If equal Things $a = m$
 Be multiplied by equal Things $b = n$
 The Product will be equal $ab = mn$.*

202. AXIOM V. *If equal Things $a = m$
 Be divided by equal Things $b = n$
 The Quotients will be equal, viz. $\frac{a}{b} = \frac{m}{n}$.*

203. Now from hence we prove that Fractions of any Kind reduced to the same Denomination are added, by adding their Numerators, and subscribing the common Denominator. Thus

$\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}$ for let $\frac{a}{b} = m$, $\frac{c}{b} = n$, and multiplying both Sides of each Equation by b , we have $a = bm$, and $c = bn$ (by Inst. 201) and $mb + bn = a + c$, (Inst. 199); and $m + n = \frac{a+c}{b}$ (Inst. 202.); that is, (by substituting the Value

of m and n) $\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}$. And in the same Manner

it is shewn, that $\frac{a}{b} - \frac{c}{b} = m - n = \frac{a-c}{b}$.

204. Again, $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$ is thus demonstrated. Let $\frac{a}{b} = m$, $\frac{c}{d} = n$; then $a = mb$, and $c = nd$; and $b d m n = ac$ (Inst. 201.) therefore $\frac{ac}{bd} = m \times n = \frac{a}{b} \times \frac{c}{d}$.

205. Lastly, it is shewn that $\frac{a}{b}$ divided by $\frac{c}{d}$ give $\frac{ad}{cb}$; for $mb = a$, and $mbd = ad$ (Inst. 201); also $nd = c$, and $ndb = cb$; therefore $\frac{mbd}{ndb} = \frac{ad}{cb} = \frac{m}{n} = \frac{a}{b} \div \frac{c}{d}$.

CHAP. VII.

Of INFINITE SERIES.

206. **W**HEN it happens in Division, that the Divisor is not exactly contained in the Dividend, the Operation may be continued without End; and the Quotient will in that Case be an *Infinite Series* of Terms. This will be the Case, if you divide *Unity* by $1 - a$; as below.

$$\begin{array}{r}
 1 - a \) \ 1 \qquad (1 + a + aa + aaa, \&c. \\
 \underline{1 - a} \\
 + a \\
 \underline{+ a - aa} \\
 + aa \\
 \underline{+ aa - aaa} \\
 + aaa \\
 \underline{+ aaa - aaaa} \\
 + aaaa, \&c.
 \end{array}$$

N. B. Here it is soon to be observed, in what Order or Manner the several Terms of the Series in the Quotient will arise, without farther Operation; this is called *discovering the Law of the Series*.

207. Let it be required to divide $aa + xx$ by $a + x$; thus

$$a + x \) \ aa + xx \ (\ a - x + \frac{2xx}{a} - \frac{2x^3}{a^2} + \frac{2x^4}{a^3}, \&c.$$

$$\begin{array}{r}
 aa + ax \\
 \underline{- ax + xx} \\
 - ax - xx \\
 \underline{ + 2xx} \\
 + 2xx + \frac{2xxx}{a} \\
 \underline{ - \frac{2xxx}{a}} \\
 - \frac{2xxx}{a} - \frac{2xxxx}{a^2} \\
 \underline{\phantom{- \frac{2xxx}{a} - } + \frac{2xxxx}{a^2}}, \&c.
 \end{array}$$

Here

Here the Law of the Series is discovered in a few Terms ; and the Series may be continued at Pleasure without farther Trouble ; also the Signs are here alternately + and —.

208. Another Example take as follows. Divide ay by $1 + x$.

$$\begin{array}{r}
 1 + x \) \ ay \quad (\ ay - ayx + ayxx - ayxxx, \&c. \\
 \underline{ay + ayx} \\
 \quad - ayx \\
 \quad \underline{- ayx - ayxx} \\
 \qquad \quad + ayxx \\
 \qquad \quad \underline{+ ayxx + ayxxx} \\
 \qquad \qquad \quad - ayxxx - ayx^4 \\
 \qquad \qquad \quad \underline{- ayxxx - ayx^4} \\
 \qquad \qquad \qquad \quad + ayx^4, \&c.
 \end{array}$$

Therefore $\frac{ay}{1+x} = ay - ayx + ayxx - ayxxx, \&c. = ay \times$

$\frac{1}{1-x+xx-xxx, \&c.}$ but also $\frac{ay}{1+x} = ay \times \frac{1}{1+x}$;

hence $\frac{1}{1+x} = 1 - x + xx - xxx, \&c.$ as is evident by dividing each Side of the Equation by ay .

209. This Method of expressing a Fraction in an *Infinite Series* will be often found very advantageous in approximating the Values of Mathematical Quantities expressed in an Algebraic or Fluxionary Manner, as we shall find in many Instances as we proceed. And indeed this is the Foundation of the *Arithmetic of Infinities* ; for these interminate Series may be *added* and *subtracted* ; *multiplied* and *divided* ; *squared* and *cubed* ; and the *Square* and *Cube Roots* extracted ; and so that the *Sum* and *Difference* ; *Product* and *Quotient* ; *Power* and *Root*, shall still be an *infinite Series*, of which we shall treat more fully hereafter, when the Learner has seen more of the Nature and Use of this Sort of Arithmetic.

CHAP. VIII.

The RULES for ordering simple EQUATIONS.

210. **A**N EQUATION is the Expression of Equality between two Quantities ; as $\frac{3}{4}x = b$, or $3x = 4b$, or $x = \frac{4}{3}b$. Now the Use of an Equation is to give the Value of an unknown Quantity x on one Side, in others which are known on the other Side ; for though $\frac{3}{4}x = b = 9$, it will not so easily appear what x is, till you get it by it's self on one Side of the Equation, by reasoning thus ; if $\frac{3}{4}x = 9$, then $3x = 4 \times 9 = 36$ (by Axiom 4.) and so $x = \frac{36}{3} = 12$, (by Axiom 5.) and is therefore known.

211. And it is the whole Design of this Analytic Science to exprefs the Parts and Conditions of any Problem or Question in Symbols, and to supply Rules for the due ordering and forming such a Process as shall at last produce an Equation, with the unknown Quantity on one Side, and those that are known on the other. The Rules for this Purpose are as follow.

RULE I.

212. Any Quantity may be transposed from one Side of an Equation to the other, by changing its Sign. For this is nothing more than to add the same Quantity on both Sides with a different Sign. (See Inst. 199.)

Thus, suppose $x + 8 = 53$.

Then by Transposition, $x = 53 - 8 = 45$.

Again, let $5x - 4b = 4x + 10$

By Transposition, $5x - 4x = x = 10 + 4b$.

If $2x + a = x + b$

Then $2x - x = x = b - a$.

RULE II.

213. Any Quantity by which the unknown Quantity is multiplied may be taken away, by dividing all the Quantities in the Equation by it. This is evident from Inst. 202.

Thus, if $ax = b$, then dividing both Sides by a , we have

$$x = \frac{b}{a}$$

M

Again,

Again, suppose $3x + 12 = 27$

Then, by Rule I. $3x = 27 - 12 = 15$

And, by Rule II. $x = \frac{15}{3} = 5$.

Also, if $ax + 2ba = 3c$

Then, Rule I. $ax = 3c - 2ba$

And by Rule II. $x = \frac{3c}{a} - 2b$.

RULE III.

214. *If the unknown Quantity be divided by any Quantity, that Quantity may be taken away by multiplying all the other Parts of the Equation by it. (See Inst. 201.)*

Thus, if $\frac{x}{b} = b + 5$

Then shall $x = bb + 5b$.

If $\frac{x}{5} + 4 = 10$

Then $x + 20 = 50$

And so $x = 50 - 20 = 30$, by Rule I.

If $\frac{4x}{3} + 24 = 2x + 6$

Then $4x + 72 = 6x + 18$

And (Rule I.) $72 - 18 = 6x - 4x = 2x = 54$

Therefore $x = \frac{54}{2} = 27$.

RULE IV.

215. *If the unknown Quantity be concerned in Fractions, and there be more such Fractions than one, they may be reduced to a common Denominator, by which, if you multiply all the Terms, the unknown Quantity will be disengaged as before.*

Thus, let $\frac{x}{5} + \frac{x}{3} = x - 7$

Then $\frac{3x + 5x}{15} = \frac{8x}{15} = x - 7$

Consequently, $8x = 15x - 105$

Whence, $7x = 105$, and $x = \frac{105}{7} = 15$.

RULE

RULE V.

216. If the unknown Quantity be contained in a Surd Root, it will be equated with the known Quantities by involving both Sides of the Equation, to the proper Power.

Thus, suppose $\sqrt{4x + 16} = 12$

Then, by squaring each Side, $4x + 16 = 144$

By Transposition $4x = 144 - 16 = 128$

Therefore, $x = \frac{128}{4} = 32.$

Again, if $\sqrt{ax + b^2} - c = d$

Then, $\sqrt{ax + b^2} = d + c$

And, by squaring $ax + b^2 = d^2 + 2dc + c^2$

Whence $x = \frac{d^2 + 2dc + c^2 - b^2}{a}.$

Lastly, if $\sqrt[3]{a^2x - b^2x} = a$

Then, $a^2x - b^2x = a^3$

And, $x = \frac{a^3}{a^2 - b^2}.$

RULE VI.

217. If that Side of the Equation which contains the unknown Quantity be a compleat Square, Cube, or other Power; then will the unknown Quantity be equated with known Ones by Extraction of the proper Root.

For Example, let $x^2 = 144$

Then, $x = \sqrt{144} = 12.$

Again, let $x^2 + 6x + 9 = 20$

Then, . . . $x + 3 = \sqrt{20}$

And, . . . $x = \sqrt{20} - 3.$

If we have $x^2 + ax + \frac{a^2}{4} = b^2$

M 2 Then,

Then, $x + \frac{a}{2} = \underline{+} b^2 *$

And, $x = \underline{+} b^2 - \frac{a}{2}$.

R U L E VII.

218. *If the unknown Quantity be contained in the Terms of an Analogy, it may be had by multiplying Extremes and Means together for an Equation. (See Inst. 104, 105.)*

Thus, suppose $12 - x : \frac{x}{2} :: 4 : 1$

Then, $12 - x = 2x$, and $12 = 3x$, and $x = 4$.

Or, if $20 - x : x :: 7 : 3$

Then, $60 - 3x = 7x$; or $10x = 60$, and $x = 6$.

R U L E VIII.

219. *If any Quantity be found on both Sides the Equation, or multiplied into all the Terms, or dividing them all, it may be struck out of the Equation. Thus,*

If $3x + b = a + b$; then $3x = a$, and $x = \frac{a}{3}$.

Again, if $3ax + 5ab = 8ac$; then $3x + 5b = 8c$, and $x = \frac{8c - 5b}{3}$.

If $\frac{2x}{3} + \frac{8}{3} = \frac{16}{3}$; then $2x + 8 = 16$, and $x = 4$.

R U L E IX.

220. *Instead of any Quantity in an Equation you may substitute another of equal Value.*

Thus, if $3x + y = 24$; and $y = 9$;

Then, $3x + 9 = 24$; and $x = \frac{24 - 9}{3} = 5$.

The

* The Reason why both the Signs $+$ and $-$ are here placed before b^2 will be shewn a little farther on.

The Rules hitherto delivered relate to Equations which contain but one unknown Quantity ; but when one or more are concerned in the Question, you proceed by the following Rules.

R U L E X.

221. *If there be two unknown Quantities x and y, there must be two Equations arising from the Conditions of the Question ; from which a Value of either x or y must be found in each Equation, and putting these Values equal to each other, a new Equation will arise, involving only one unknown Quantity, which is then found by the foregoing Rules.*

EXAMPLE I.

Suppose the Sum of } $x + y = s$
any two Quantities }
And their Difference $x - y = d$

Then we have . . . $\begin{cases} x = s - y \\ x = d + y \end{cases}$

Therefore . . . $d + y = s - y$

Consequently . . . $2y = s - d$

Hence . . . $y = \frac{s - d}{2}$

And by adding the two Equations $x = \frac{s + d}{2}$.

EXAMPLE II.

Suppose $x + y = s$

And let $x : y :: a : b$

Then . . . $bx = ay$

And . . . $x = \frac{ay}{b}$

But also . . . $x = s - y$

Therefore . . . $s - y = \frac{ay}{b}$

Hence . . . $sb - by = ay$

And . . . $sb = ay + by$

Consequently $y = \frac{sb}{a + b}$

And,

And, lastly $x = \frac{ay}{b} = \frac{sa}{a+b}$.

EXAMPLE III.

Let $x + y = s$

And $x^2 - y^2 = d$

Then $x = s - y$

The Square of which, $x^2 = s^2 - 2sy + y^2$

Also $x^2 = d + y^2$

Therefore $d + y^2 = s^2 - 2sy + y^2$

Hence $d = s^2 - 2sy$

And $2sy = s^2 - d$

So $y = \frac{s^2 - d}{2s}$

And $x = \frac{s^2 + d}{2s}$.

R U L E XI.

222. *When there are three unknown Quantities x, y, and z, there must be three Equations given, by which they may be determined; by comparing and equating these, two Equations may be obtained involving only two unknown Quantities, which are then known by the foregoing Rule.*

EXAMPLE.

Suppose $\begin{cases} x + y + z = 12 \\ x + 2y + 3z = 20 \\ \frac{x}{3} + \frac{y}{2} + 7 = 6 \end{cases}$

Then we have $\begin{cases} 1. x = 12 - y - z. \\ 2. x = 20 - 2y - 3z. \\ 3. x = 18 - \frac{3}{2}y - 3z. \end{cases}$

From whence we have $\begin{cases} 12 - y - z = 20 - 2y - 3z \\ \text{these two Equations } 12 - y - z = 18 - \frac{3}{2}y - 3z. \end{cases}$

There-

Therefore we have (by Rule X.) $y = 4$, $z = 2$; and consequently $x = 6$.

223. Sometimes the Equations are such, that the same Quantities in different Equations may have contrary Signs, and destroy each other; or be otherwise affected, so as to shorten the common Process very much.

Thus, suppose
$$\begin{cases} x + y + z = 26 \\ x - y = 4 \\ x - z = 6 \end{cases}$$

Then by Addition only, $3x = 36$

Hence $x = 12$; $y = x - 4 = 8$; and $z = x - 6 = 6$.

R U L E XII.

224. If, in a general Way, the unknown Quantities x and y have Coefficients, and the Value of the Equations are expressed in Symbols, as thus,

$$\begin{cases} ax + by = c \\ dx + ey = f \end{cases} \text{ it will always be } y = \frac{af - dc}{ae - db};$$

and $x = \frac{ce - bf}{ae - db}$; which are general Theorems for the Values of x and y in all Cases.

For in the first Equation, $ax = c - by$, and $x = \frac{c - by}{a}$.

And in the Second, $dx = f - ey$, and $x = \frac{f - ey}{d}$.

Therefore $\frac{c - by}{a} = \frac{f - ey}{d}$, and $cd - dby = af - aey$.

Whence $aey - dby = af - cd$.

Consequently $y = \frac{af - dc}{ae - db}$; and $x = \frac{ce - bf}{ae - db}$.

Example in Numbers. Suppose
$$\begin{cases} 5x + 7y = 100 \\ 3x + 8y = 80 \end{cases}$$

Then $y = \frac{5 \times 80 - 3 \times 100}{5 \times 8 - 3 \times 7} = \frac{100}{19} = 5 \frac{5}{19}$, and $x =$

$$\frac{240}{19} = 12 \frac{12}{19}.$$

225. After the same Manner, you may raise general Theorems when there are three unknown Quantities, x , y , and z ,
and

and three Equations given ; but more of this in another Place. To conclude, we see by the above Rules, *That when there are as many simple Equations given as Quantities required, the Question is limited, and the Quantities may be discovered and determined by those Rules.*

226. But, if there are more Quantities required, than Equations given, the Question is not limited to determinate Quantities. And, if there are more Equations given, than Quantities required, it may be impossible to find Quantities that may answer the Conditions of the Question, because some of them may be inconsistent with others.

CHAP. IX.

A Collection of such Questions as produce SIMPLE EQUATIONS.

227. **T**HE Order of our Institutions now brings us to consider those Questions which produce *Simple Equations* ; and these will be found not only proper Exercises for the Learner, but the first Example of the Use of this excellent Art ; and here we shall follow the Method invented by Mr. *Ward*, on Account of its Perspicuity and Ease, *viz.* that of numbering and registering each Step of the Process, as in the following *Solutions.*

QUESTION I.

228. If the Sum of two Numbers be 20, and their Difference 12 ; what are those Numbers ?

First let	1	$x =$ the Greater Number	
And	2	$y =$ the Lesser.	
Then	3	$x + y = 20$	} per Question.
And	4	$x - y = 12$	
Then (212)	5	$x = 20 - y,$	
And	6	$x = 12 + y;$	
Consequently	7	$20 - y = 12 + y.$	
Then by	8	$20 - 12 = 2y = 8;$ hence $y = 4;$	
And per Question	9	$x + 4 = 20,$	
Therefore . . .	10	$x = 20 - 4 = 16;$ See (Inst. 221.)	

where you observe two general Theorems for any Question of this Kind.

QUESTION II.

229. Suppose there are two Numbers whose Sum is 32, and their Ratio as 5 to 3. Query those Numbers?

Let the Numbers be	1	$x + y = 32$	} The Data.
And	2	$x : y :: 5 : 3$	
Then (138)	3	$3x = 5y$	
Divide by 3, . . .	4	$x = \frac{5}{3}y$	
Also	5	$x = 32 - y$	
Therefore	6	$32 - y = \frac{5}{3}y$	
Multiply by 3, . .	7	$96 - 3y = 5y$	
And	8	$96 = 8y$	
Wherefore	9	$y = \frac{96}{8} = 12.$	
But by 5th . . .	10	$x = 32 - y = 32 - 12 = 20.$	

The two Numbers therefore are 20 and 12, for $20 + 12 = 32$; and $20 : 12 :: 5 : 3$, as required.

QUESTION III.

230. A Person being asked how old he was, replied, that $\frac{3}{4}$ of his Age multiplied by $\frac{1}{12}$ of his Age, gives a Product equal to his Age. Query what was his Age?

Put	1	$x =$ to his Age.
Then <i>per</i> Question	2	$\frac{3x}{4} \times \frac{x}{12} = x$
That is	3	$\frac{3x^2}{48} = x$
Whence (by 214)	4	$3x^2 = 48x$
That is, (by 219)	5	$3x = 48$
Consequently (by 213)	6	$x = 16 =$ the Age required.

QUESTION IV.

231. A Person has six Sons, each of which is 4 Years older than the next younger Brother; and the Eldest is 3 Times as old as the Youngest. What are their several Ages?

Let their several	}	1	{	$x, x + 4, x + 8, x + 12, x +$
Ages be				$16, \text{ and } x + 20.$
But <i>per</i> Question		2		$3x = x + 20.$
Then, transposing,		3		$3x - x = 20.$
That is		4		$2x = 20.$
Therefore		5		$x = 10.$

So their Ages are, 10, 14, 18, 22, 26, and 30, as required.

QUESTION V.

232. A Privateer running at the Rate of 10 Miles an Hour, discovers a Ship 18 Miles off making Way at the Rate of 8 Miles an Hour : It is demanded how many Miles the Ship can run before she be overtaken?

Put 1 x = Miles the Ship runs.

And 2 y = Miles the Privateer runs.

Then by Supposition 3 $x : y :: 8 : 10$;

Therefore 4 $10x = 8y$, and $x = \frac{4}{5}y$.

But also 5 $x = y - 18$;

Therefore 6 $\frac{4y}{5} = y - 18$,

Whence 7 $4y = 5y - 90$

Consequently 8 $y = 90$; and $x = y - 18 = 72$.

To find the Time; you say, as 8 Miles : 1 Hour :: 72 Miles : 9 Hours.

QUESTION VI.

233. It is required to divide the Number 50 into two such Parts, that $\frac{3}{4}$ of one Part being added to $\frac{5}{6}$ of the other, may make 40.

Put x y for the two Parts.

Then 1 $\frac{3x}{4} + \frac{5y}{6} = 40$.

Multiply by 4, 2 $3x + \frac{20y}{6} = 160$

Multiply by 6, 3 $18x + 20y = 960$

Therefore 4 $20y = 960 - 18x$

Whence 5 $y = \frac{960 - 18x}{20} = 50 - x$

Hence 6 $960 - 18x = 1000 - 20x$

Then 7 $1000 - 960 = 2x = 40$

Consequently 8 $x = 20$; and therefore $y = 30$.

QUESTION VII.

234. Two Persons, A and B , were talking of their Money : says A to B , lend me five Shillings of your Money, and I shall have just as much as you will have left : Says B to A , rather lend me five Shillings of your Money, and I shall then have just three Times as much as you will have left : How much Money had each ?

Put

Put $x = A$'s Money, and $y = B$'s.

Then, if A borrows, $| 1 | x + 5 = y - 5$
 So that $| 2 | y = x + 10$
 If B borrows, then $| 3 | y + 5 = 3 \times x - 5 = 3x - 15$
 Therefore (A) . . . $| 4 | x + 10 + 5 = x + 15 = 3x - 15$
 And so $| 5 | x + 30 = 3x$
 Consequently . . . $| 6 | 2x = 30$, and $x = 15$ s. A 's Money.
 And $| 7 | x + 10 = y = 25$ s. B 's Money.

QUESTION VIII.

235. A Person has three Debtors, A , B and C , whose particular Debts he has forgot; but thus much he could remember from his Accounts, that A 's and B 's Debts together amounted to 60 Pounds; A 's and C 's to 80 Pounds; and B 's and C 's to 92 Pounds: I demand the Particulars?

The Debts let be represented by x , y , and z .

Then $| 1 | x + y = 60$
 $| 2 | x + z = 80$
 $| 3 | y + z = 92$ } *per Question.*
 Then the 3—2d Step $| 4 | y - z = 92 - 80 = 12$
 But 1st Step . . . $| 5 | y + z = 60$
 Therefore $| 6 | 2y = 60 + 12 = 72$; and $y = 36$.
 Hence $| 7 | x + y = x + 36 = 60$; and $x = 60 - 36 = 24$.
 And lastly $| 8 | z = 92 - y = 92 - 36 = 56$.
 So A 's Debt is 24*l*. B 's 36*l*. and C 's 56*l*.

QUESTION IX.

236. There is a certain Fish whose Head is 9 Inches; the Tail is as long as the Head and half the Back; and the Back is as long as both the Head and Tail together. I demand the Length of the Back, and of the Tail?

Put $| 1 | x =$ Length of the Back;
 Then since . . . $| 2 | 9 =$ Length of the Head,
 We have $| 3 | x - 9 =$ the Length of the Tail.
 But, by Supposition $| 4 | x - 9 = \frac{x}{2} + 9$;
 Therefore $| 5 | 2x - 18 = x + 18$;
 And so $| 6 | 2x - x - 18 = 18$
 That is $| 7 | x - 18 = 18$, or $x = 36 =$ L. of the Back
 And $| 8 | x - 9 = 27 =$ Length of the Tail.
 So the whole Length of the Fish was $9 + 36 + 27 = 72$ Inches, and $27 = 9 + \frac{36}{2}$, and $36 = 9 + 27$.

QUESTION X.

237. One has a Lease for 99 Years ; and being asked how much of it was already expired, answered, that two Thirds of the Time past was equal to four Fifths of the Time to come : Quere the Times past, and to come ?

Put	1 $x =$ Time past.
Then	2 $99 - x =$ Time to come.
But	3 $\frac{2x}{3} = \frac{4}{5}$ of $99 - x = \frac{396 - 4x}{5}$;
Therefore . . .	4 $2x = \frac{1188 - 12x}{5}$
Consequently . .	5 $10x = 1188 - 12x$
Hence	6 $10x + 12x = 22x = 1188.$
Therefore . . .	7 $x = \frac{1188}{22} = 54$ Years, the Time past.
And	8 $99 - x = 45$, the Years to come.

Thus $\frac{2}{3}$ of 54 is 36, and $\frac{4}{5}$ of 45 is 36, as required.

QUESTION XI.

238. A Gentleman distributing Money among some poor People, found he wanted 10s. to be able to give 5s. to each, therefore he gives each 4s. only, and finds he has 5s. left. Query the Number of Shillings and poor People?

Let $x =$ Number of People, and $y =$ Number of Shillings.

Then by Supposi-	{	1 $5x = y + 10$
tion		2 $4x = y - 5$
Then	3 $5x - 10 = y$	
And	4 $4x + 5 = y$	
Therefore . . .	5 $5x - 10 = 4x + 5$	
Consequently . .	6 $5x - 4x = x = 15 =$ the poor People.	
And therefore . .	7 $y = 4x + 5 = 65 =$ the Shillings.	

QUESTION XII.

239. Suppose the Distance between *London* and *Edinburgh* to be 360 Miles, and that a Courier sets out from *Edinburgh* running at the Rate of 10 Miles an Hour ; Another sets out at the same Time from *London*, and runs the Rate of 8 Miles an Hour. It is required to know where they will meet ?

Suppose the Courier from *Edinburgh* runs x Miles, and the other y Miles before they meet,

Then

Then . . . $\left\{ \begin{array}{l} 1 | x + y = 360 \\ 2 | x : y :: 5 : 4 \end{array} \right\}$ by Supposition.

Therefore . . . $3 | 4x = 5y; \text{ and } x = \frac{5}{4}y.$

Also . . . $4 | x = 360 - y = \frac{5}{4}y$

Hence . . . $5 | \frac{5}{4}y + y = 360.$

Therefore . . . $6 | 9y = 1440.$

Consequently $\left\{ \begin{array}{l} 7 | y = 160. \\ 8 | x = 360 - y = 200. \end{array} \right.$

QUESTION XIII.

240. One sets out from a certain Place and travels at the Rate of 7 Miles in 5 Hours, and 8 Hours after another sets out from the same Place and travels the same Road at the Rate of 5 Miles in 3 Hours. How long and how far must the First travel before he is overtaken by the Second.

Put . . . $1 | x = \text{Hours the 1st travelled.}$

Then . . . $2 | x - 8 = \text{Hours the 2d travelled.}$

Now say, $3 | 5 : 7 :: x : \frac{7}{5}x = \text{Whole Distance.}$

Also . . . $4 | 3 : 5 :: x - 8 : \frac{5x - 40}{3} = \text{Whole Distance.}$

Therefore $5 | \frac{5x - 40}{3} = \frac{7}{5}x$

Whence $6 | 25x - 200 = 21x.$

Therefore $7 | 25x - 21x = 4x = 200$

Hence . . . $8 | x = 50; \text{ and } x - 8 = 42.$

And so $9 | \frac{7}{5}x = 70 \text{ Miles they both travelled.}$

241. These Examples may suffice for a mixt or numerical Analysis; but Questions solved in a general Way by Symbols only, are much more useful since they then become general Canons or Theorems, and are applicable to every particular Case; whereas the other Way in Numbers is confined to one Case only; therefore we shall proceed to give a few Examples of general Solutions. Thus,

QUESTION XIV.

242. Two Couriers, *A* and *B*, set out from two Places distant from each other *d* Miles; of which the foremost *A* travels *p* Miles in *q* Hours, and *B* travels *r* Miles in *s* Hours; he is supposed to walk fastest, and the same Way with *A*. It is required to

to know how many Miles each must travel before *B* can overtake *A*?

Put . . .	1	$x =$ Miles <i>A</i> travelled
	2	$y =$ Miles <i>B</i> travelled
Then also	3	$x = y - d$
And we have	4	$q : p :: 1 : \frac{p}{q} =$ Miles per Hours by <i>A</i>
Also	5	$s : r :: s : \frac{r}{s} =$ Miles <i>B</i> walks per Hour
Then we have	6	$x : y :: \frac{p}{q} : \frac{r}{s}$
Hence	7	$\frac{xr}{s} = \frac{py}{q}$
Therefore	8	$qrx = psy$
Whence . . .	9	$\frac{psy}{qr} = x = y - d$
And so . . .	10	$psy = qry - qrd$
And	11	$psy + qrd = qry$
Whence . . .	12	$qrd = qry - psy$
Therefore	13	$\frac{qrd}{qr - ps} = y =$ Miles <i>B</i> travelled
And lastly	14	$x = y - d =$ Miles travelled by <i>A</i> .

N. B. If $p = 8$, $q = 1$; $r = 10$, $s = 1$; and $d = 18$; then $y = 90$, $x = 72$, as in Question 11. Thus *A* is the Ship; and *B* the Privateer that pursued her. But more generally yet;

QUESTION XV.

243. Let *A* be a moveable Body, which in Time *f* can describe the Space *c*; and let *B* be another moving Body, which in the Time *g* can describe the Space *d*; let the Distance from which they begin to move, be called *a* and *b*, the Difference of the Time.

In the Solution of this Problem, there will be two Cases, the first is, when both the Bodies, *A* and *B*, tend towards the same Parts, or move the same Way. The second Case is, when they tend towards contrary Parts, or meet each other. In both Cases we suppose the Body *A* to be farthest from the Place where they come together.

CASE I.

244. Let that Distance of A be called x , from which take the Interval e , and there will remain $x - e$ for the Distance of B , from the said Place where they come together. And since A passeth over the Space c in the Time of f , it will pass over the Space x in the Time of $\frac{fx}{c}$, for it is $c : f :: x : \frac{fx}{c}$.

Also since B passeth over the Space d in the Time g , it will pass over the Space $x - e$ in the Time $\frac{gx - ge}{d}$; since $d : g :: x - e : \frac{gx - ge}{d}$.

Now since the Difference of those Times is supposed be b , that they may become equal; we must add b to the shortest Time, that is, (since A is supposed to move first) to the shortest Time of B , viz. to $\frac{gx - ge}{d}$; and then we have the Time equalled;

viz. $\frac{gx - ge}{d} + b = \frac{fx}{c}$; and which reduced, gives $x = \frac{cge - cdb}{cg - df}$. But if the nearest Body B begin to move first, b

must be added to the shorter Time of A , viz. $\frac{fx}{c}$ and we have

$\frac{fx}{c} + b = \frac{gx - ge}{d}$; which reduced gives $\frac{cge + cdb}{cg - fd} = x$.

CASE II.

245. If the Bodies, A and B meet; then if $x =$ Distance of the remotest Body A from the Place where they meet, as before, we have $e - x =$ Distance of B from the same Spot. And the Times in which they pass over those Spaces will be $\frac{fx}{c}$, and

$\frac{ge - gx}{d}$, found as before. Then if A moves first, we have

$\frac{ge - cx}{d} + b = \frac{fx}{c}$ and this Equation gives $\frac{cge + cdb}{cg + df} = x$.

But

But if B move first, we have $\frac{fx}{c} + b = \frac{ge - gx}{d}$; whence
 we get $\frac{cge - cgb}{cg + df} = x$.

EXAMPLE I.

246. The Sun describes each Day a Degree in the Ecliptic, and the Moon Thirteen; and at a certain Time, when the Sun is in the Beginning of *Cancer*, suppose the Moon, three Days after, to be in the Beginning of *Aries*. It is required to know in what Part of the Ecliptic the next new Moon will happen?

In order to solve this Problem, we must consider that A represents the Moon, and B represents the Sun, and that they both tend towards the same Part; and lastly, that the Motion of A is shorter than that of B ; therefore the Theorem $\frac{cge + cdb}{cg - df} = x$ must be used, in which the Values of the several Letters are known. Thus,

$c = 13$ Degrees, the Moon's Motion *per* Day.

$f = 1$ Day.

$d = 1$ Degree, the Sun's Motion *per* Day.

$g = 1$ Day.

$e = 90$ Degrees, the Distance of the Sun and Moon.

$b = 3$ Days, the difference in Time.

Hence the above Theorem is expressed in Numbers thus,

$$\frac{cge + cdb}{cg - df} = \frac{13 \times 1 \times 90 + 13 \times 1 \times 3}{13 \times 1 - 1 \times 1} = \frac{1209}{12} =$$

$100 \frac{3}{4}$, that is, $100 \frac{3}{4}$ Degrees from the Beginning of *Aries*, so that the Conjunction happens in $10 \frac{3}{4}$ Degrees of *Cancer*.

After the same Manner, A and B may represent the two Hands of a Clock, either setting out from the same Place at the same Time, or from different Places at different Times.

Again, by Theorem $\frac{cge + cdb}{cg - df} = x$, A and B may represent two Persons setting out from two different Places, in order to meet, either at the same, or different Times, as in the former Question, for *London* and *Edinburgh*, and the Distance travelled by each will be found by the Theorem, the same as was there determined. But these Things we shall leave as a proper Exercise for the young Learner.

CHAP. X.

Questions analytically solved, to illustrate the NATURE and REASON of the several RULES of ARITHMETIC, in Vulgar Computation.

247. **W**E shall here give the Solution of such Questions, in an Algebraic Way, as will shew the *Rationale* of the Methods used in the several Operations of *Vulgar Arithmetic*, such as the DOUBLE RULE OF THREE, RULES OF FELLOWSHIP, ALLIGATION, SIMPLE INTEREST, FALSE POSITION, &c. as our principal View in all these Things, is rather to make an intelligent than practical Artist, since many are ready enough at Practice, at the same Time they know little or nothing of the Reason of what they do.

I. DOUBLE RULE of THREE.

248. In all Questions of this Kind, there are three principal Terms which contain the Supposition, and three others in which the Question lies; the three first are as follows :

A, the efficient Cause that produces an Effect;

T, the Time in which that Effect is produced;

E, the Effect produced in the given Time.

The other three Terms, which move the Question, are of the same Kind, and therefore to be denoted by the same Letters *a*, *t*, *e*, in small Characters; hence, in order to raise Theorems for stating Questions in this Rule, we must reason as follows :

249. In equal Times, the Effects produced will always be proportioned to the efficient Causes: This is a self-evident Axiom, or indisputable Truth. Therefore, to express this in Symbols, we must put $T = t$, and then we have this Analogy, $E : e :: A : a$; therefore $A e = E a$.

250. Another Axiom is, that when the efficient Causes are equal, the Effects which they produce will always be proportioned to the Times that are employed in producing them. That is in Symbols, if $A = a$, then $E : e :: T : t$, and therefore $E t = e T$.

251. But when neither the Times nor the efficient Causes are equal, the Effects produced will be greater in Proportion to them both conjointly, that is, $E : e :: AT : at$, and therefore $atE = ATe$, from which general Theorem, if any five of those Quantities are given, the Sixth may be found without any regard to the Proportions being *Direct* or *Inverse*. And the three Terms of the Question may be expressed by the three following Theorems, viz. Theo. I. $a = \frac{ATe}{Et}$. Theo. II. $e = \frac{atE}{AT}$. Theo.

III. $t = \frac{eAT}{Ea}$.

EXAMPLE I.

252. Suppose 100*l.* in 12 Months, gain 4*l.* Interest, what Principal or Sum must be put out to gain 132*l.* in 66 Months? To answer this Question, we have in Theorem I. the Value of the Symbols as follows:

$A = 100$, $T = 12$, $E = 4$, $t = 66$, $e = 132$, to find a , and the Theorem will stand in Numbers thus, $\frac{100 \times 12 \times 132}{4 \times 66} = a = 600$ *l.* the Answer.

EXAMPLE II.

If 2 Men in 3 Days will earn 4 Shillings, how much will 5 Men earn in 6 Days?

In this Case, $A = 2$, $E = 4$, $T = 3$, and $a = 5$, $t = 6$. To find e , for which Purpose we must make use of Theorem II. $\frac{atE}{AT} = e$, that is in Numbers $\frac{5 \times 6 \times 4}{2 \times 3} = 20$ Shillings, the Answer.

EXAMPLE III.

If for the Carriage of 300 Weight 40 Miles, I must pay 7 Shillings and 6 Pence, how far may I carry 500 Weight for 18 Shillings and 9 Pence?

In this Question we have given $A = 300$, $E = 90$ Pence, and $T = 40$, $a = 500$, $e = 225$ Pence, to find t ?

N. B. In Questions of this Sort, the Letter T , or t , may denote, not only *Time*, but also *Distance*, or any other Mode, or Way by which any Cause can produce its Effect, the Solution there-

therefore of this Question, is by Theorem III. viz. $\frac{eAT}{Ea} = t$,

which in Numbers, stands thus, $\frac{225 \times 30 \times 40}{90 \times 500} = 60$ Miles.

The RULE of FELLOWSHIP.

253. Suppose $\left\{ \begin{array}{l} A, B, C, D, \&c. \text{ Merchants trading in Company.} \\ a, b, c, d, \&c. \text{ Each Man's Money in Stock.} \\ w, x, y, z, \&c. \text{ The Time it is employed by each.} \end{array} \right.$

Now since each Person's Share, of the Loss or Gain, must be proportioned to the Money he advances, and also to the Time it is employed in Trade, therefore his Share will be as the Product of both multiplied together; that is to say, $aw = A$'s Share, $bx = B$'s Share, and so on.

Therefore let $\left\{ \begin{array}{l} aw + bx + cy + dz, \&c. = S, \text{ the Sum of} \\ \text{the Products of the Times and Stocks.} \\ G = \text{the whole Gain, Loss, \&c. by Trading.} \end{array} \right.$

Then it is evident as $S : G ::$ each of the above Products : Merchant's Share of Loss or Gain respectively: That is, in Symbols as follows:

Theorem I. $S : G :: aw : \frac{G}{S} \times aw = A$'s Gain.

Theorem II. $S : G :: bx : \frac{G}{S} \times bx = B$'s Gain.

Theorem III. $S : G :: cy : \frac{G}{S} \times cy = C$'s Gain.

Theorem IV. $S : G :: dz : \frac{G}{S} \times dz = D$'s Gain.

EXAMPLE.

254. Three Merchants A , B , and C , enter into Partnership, thus;

A puts in 60*l.* for 8 Months, B puts in 75*l.* for 12 Months, and C puts in 80*l.* for 9 Months, with this joint Stock they Traffic and Gain a 150*l.* it is required to find each Man's Share proportioned to his Stock and Time.

First $\left\{ \begin{array}{l} A's \text{ Stock } 60*l.* \times 8 = 480. \\ B's \text{ Stock } 75*l.* \times 12 = 900. \\ C's \text{ Stock } 80*l.* \times 9 = 720. \end{array} \right\}$ Then say,

The Sum of the Products = 2100.

As

		l.	s.	d.	
As 2100 : 150 {	:: 480 : 34,	2857 =	34	5	8 $\frac{1}{2}$ A's Gain.
	:: 900 : 64,	2857 =	64	5	8 $\frac{1}{2}$ B's Gain.
	:: 720 : 51,	42857 =	51	8	6 $\frac{3}{4}$ C's Gain.

N. B. When all the Stocks are employed an equal Time, the Theorems above will become more Simple, for then we neglect the Characters, w, x, y, z , as being each equal to Unity, in which Case those Theorems give the Rules of what is usually called SINGLE FELLOWSHIP, which, as it is so easy, we need not here farther insist on.

The RULE of ALLIGATION.

255. Alligation is a Rule for compounding or mixing several Ingredients of different Sorts together, in any Manner or Proportion.

Let the Quantities to be compounded be a, b .

Their Prices ——— ——— ——— x, y .

The Compound which they make ——— c

And its Price ——— ——— ——— p

Then we have ——— ——— $a + b = c$.

And also ——— ——— $xa + yb = pc$

Whence this Analogy, as $c : xa + yb :: 1 : p$.

That is in Words, *as the Sum of the Quantities is to the Sum of the Products of each by its Price, so is any one Part of the Compound or Mixture to the Price of that Part.*

EXAMPLE.

Suppose 20 Pounds of Tobacco at 9 Pence *per* Pound, were to be mixed with 12 Pound of Ditto at 14 Pence *per* Pound, what will a Pound of that Mixture be worth? Here $a = 20, b = 12$; $x = 9, y = 14$; and $a + b = c = 32$; then $ax = 180, by = 168$; and $ax + yb = 348$. Therefore $32 : 348 :: 1 : 10d. \frac{3}{4}$, nearly, the Answer. This is called *Alligation Medial*.

256. When the Prices or particular Rates of the several Ingredients, and the Mixture and its Price are given, to find the particular Quantities of the Ingredients, it is called *Alligation Alternate*, as being the Reverse of the foregoing.

If

If two Quantities only are concerned, then will the Equation be (as before) $xa + yb = pc$;

Then $yb = pc - xa$

And $b = \frac{pc - xa}{y}$

Also it is $a + b = c$

Therefore $b = c - a = \frac{pc - xa}{y}$

Consequently $cy - ya = pc - xa$

Then $cy + xa - ya = pc$

And $xa - ya = pc - yc$

And therefore $a = \frac{p - y}{x - y} \times c.$

EXAMPLE.

257. How much Wine at 16 Pence a Pint, and of another Sort at 10 Pence a Pint, will compose a Mixture that shall be worth 12 Pence a Pint? Here $x = 16$, $y = 10$; and $p = 12$, and $c = 1$; therefore the Rule or Theorem is $a = \frac{p - y}{x - y} = \frac{12 - 10}{16 - 10} = \frac{2}{6} = \frac{1}{3}$; therefore $\frac{1}{3}$ of a Pint of the first, and $\frac{2}{3}$ of a Pint of the second Sort must be taken.

N. B. If $y = 0$, then b will represent Water, whose Price is Nothing, and then $a = \frac{p}{x} = \frac{12}{16} = \frac{3}{4}$ of a Pint.

258. When more than two Quantities are to be compounded, and all unknown, the Question will be *unlimited*, as there can be but two Equations, this will appear by the Steps of the following Process.

Let	1	a, e, y , be three Ingredients.
And	2	r, s, t , their several Prices
Also let	3	m , and p , be the Compound and its Price
Then	4	$a + e + y = m$
And	5	$ar + se + ty = pm$
Step 1st — a	6	$e + y = m - a$
5 — ar	7	$se + ty = pm - ra$
6 \times by t	8	$te + ty = tm - ta$
7 — 8	9	$se - te = pm - tm - ra + ta$
		There-

Therefore . . . 10 $e = \frac{p-t}{s-t} \times m - \frac{r-t}{s-t} \times a.$

Hence by 6th and 9th 11 $y + \frac{pm - tm - ra + ta}{s-t} = m - a$

And reducing, . . . 12 $\begin{cases} sy - ty + pm - tm - ra + ta \\ = sm - sa - tm + ta. \end{cases}$

That is . . . 13 $sy - ty + pm - ra = sm - sa$

And . . . 14 $sy - ty = sm - pm - sa + ra$

Consequently . . . 15 $y = \frac{r-s}{s-t} \times a - \frac{p-s}{s-t} \times m.$

Now here it is evident from the 10th Step, that a must be less than $\frac{p-t}{r-t} \times m$; and from the last Step it appears, that a must be greater than $\frac{p-s}{r-s}$. Therefore any Value of a may be taken between these two Limits.

EXAMPLE.

259. How much Tobacco at 2s. 8d. per Pound, and of another Sort at 20d. and of a third Sort at 16d. per Pound, must be taken to make a Mixture that shall contain 56 lb, and may be sold for 22d. per lb, without Loss or Gain?

Here $r = 32$, $s = 20$, $t = 16$; $m = 56$, and $p = 22$; also a is the Quantity worth 32d. per Pound, e that of 20d. and y that of 16d. per Pound, hence the greatest Limit of a , will be $\frac{p-t}{r-t} \times m = \frac{22-16}{32-16} \times 56 = 21$, that is to say, a must be

less than 21. Again, the least Limit of a , will be $\frac{p-s}{r-s} \times m =$

$\frac{22-20}{32-20} \times 56 = 9\frac{1}{3}$; therefore the least Quantity of a , must

be greater than $9\frac{1}{3}$. Hence 11 Answers may be obtained for this Question, in whole Numbers, and an infinite Number in Fractions. Thus if the Values of a , be as in the first Column of the following Table, then the Values of e and y , by the 10th and 15th Steps, will be found such as are contained in the 2d and 3d Columns.

a	e	y	a	e	y	a	e	y
10	44	2	14	28	14	18	12	26
11	40	5	15	24	17	19	8	29
12	36	8	16	20	20	20	4	32
13	32	11	17	16	23			

260. After the same Manner, if 4 Quantities or more are to be mixed together, you may proceed in the same Manner to find the Limits of the 1st and 2d, because all the Quantities except the two last will admit of different Values, the Process will be large and troublesome; but if the Learner will pursue it, the Method is the same as before, and the Reason and Truth of the following Theorems will then appear, which I investigated many Years since for perfecting this Part of Arithmetic.

$$\text{Let } \left\{ \begin{array}{l} a = \\ b = \\ c = \\ d = \\ x = \end{array} \right\} \text{Diff. between } \left\{ \begin{array}{l} \text{the first Rate and the last} \\ \text{the 2d and last} \\ \text{the 3d and last} \\ \text{the 4th and last} \\ \text{the Mean Rate and the last.} \end{array} \right.$$

$$\text{Also let } \left\{ \begin{array}{l} a = \\ b = \\ c = \\ d = \\ z = \end{array} \right\} \text{Diff. bet. } \left\{ \begin{array}{l} \text{the First} \\ \text{the 2d} \\ \text{the 3d} \\ \text{the 4th} \\ \text{the Mean} \end{array} \right\} \text{and the last Rate but one.}$$

$$\text{And } \left\{ \begin{array}{l} p = \\ q = \\ n = \end{array} \right\} \text{Diff. between } \left\{ \begin{array}{l} \text{Mean Rate and the second} \\ \text{the first Rate and second} \\ \text{the last but one and the last} \end{array} \right.$$

$S =$ To the Sum of all the Ingredients, $A + B + C + D + E + F, \&c.$

261. Then if there be three Quantities to be compounded $A + B + C = S$, the Theorems are as follow. Theor. I.

$$\frac{Sx}{a} = A, \text{ greatest. Theor. II. } \frac{Sp}{q} = A, \text{ least. Theor. III.}$$

$$\frac{Sx - Aa}{n} = B. \text{ Theor. IV. } S - A - B = C.$$

262. But if four Quantities are to be mixed, viz. A, B, C, D, the first is found as before; the Theorems for B and C, are as follows.

Theor.

Theor. V. $\frac{Sx - Aa}{b} = B$, greatest. Theor. VI. $\frac{Sz - Aa}{b}$
 $= B$, least. Theor. VII. $\frac{Sx - Aa - Bb}{n} = C$; and then D

is known of Course.

263. If there be five Ingredients, A, B, C, D, E, you have the greatest and least Values of A and B as before; and for C and D as below.

Theor. VIII. $\frac{Sx - Aa - Bb}{c} = C$, Greatest.

Theor. IX. $\frac{Sz - Aa - Bb}{c} = C$, Least.

Theor. X. $\frac{Sx - Aa - Bb - Cc}{n} = D$.

264. When there are six Quantities, A, B, C, D, E, F, the greatest and least Values of the three first are as in the last; and for D and E as follows.

Theor. XI. $\frac{Sx - Aa - Bb - Cc}{d} = D$, Greatest.

Theor. XII. $\frac{Sz - Aa - Bb - Cc}{d} = D$, Least.

Theor. XIII. $\frac{Sx - Aa - Bb - Cc - Dd}{n} = E$.

And thus you proceed for any greater Number at Pleasure.

265. As to the *Rule of FALSE POSITION*, as it is called, it can only be of Use to those who are unacquainted with *Algebra*; and a Person may as soon learn the *Analytic Art*, as the *Reason and Operations* of this Rule without it; thus for Instance, in the *Single Rule* where *one Position* (or Supposition) only is required, as in the following Question, viz.

266. Three Men, A, B, C, buy a Ship for 310*l.* 16*s.* of which A paid an unknown Sum; B paid 2 $\frac{1}{2}$ as much, and C 3 $\frac{1}{3}$ as much: How much did each Man pay?

Suppose A paid 48*l.* then B paid $48 \times 2,5 = 120*l.*$ and C must pay $48 \times 3,3 = 160*l.*$ But $48 + 120 + 160 = 328$ instead of 310,75*l.*

Say therefore, As 328 : 48 :: 310,75 : 45,4756, &c.

Then

BIOGRAPHIA PHILOSOPHICA;

Or, a succinct ACCOUNT of

The LIVES of the most eminent PHILOSOPHERS and MATHEMATICIANS, from the highest Antiquity to the present Time.

IN WHICH

The Places of their Birth; their peculiar Genius, and Manner of Study; their Travels for Improvement; the particular Branches of mathematical or philosophical Science in which they excelled; the Inventions, and Discoveries they made, and the Books they published on the various Subjects of Natural History, Philosophy, and the Mathematics, will be methodically related, and digested according to the Order of Time in which they lived.

The LIFE of THALES the MILESIAN.



HALES was born, as the best Writers agree, in some Part of the 35th Olympiad, flourished in the 50th, and died about the 58th; the Interval between his Birth and public Appearance in *Greece*, was passed in Study, and Travels in various Parts of *Asia*, and into *Aegypt*; in the former he acquired his first Insight into *Astronomy*, and, in the latter, his first Acquaintance with *Geometry*, *Mystical Divinity*, and *Natural Knowledge*. Having finished his Studies abroad, he returned to his Native City, *Miletus*, and transported the Stock of Learning he had acquired into his own Country.

There are not any particular Circumstances mentioned in his History respecting significant Occurrences in his Travels, other than the Favour he met with from *Amasis* King of *Ægypt*, which Favour he lost by being too free in his Opinions concerning Kings; was, by such Freedom, obliged to leave the Country; which was the probable Cause of his returning, at that Time, to *Miletus*.

In *Miletus* he lived for some Time as private as possible, devoted to Study and Contemplation, and in instructing some few in the Learning he had acquired. These were *Anaximander* and *Anaximines*, both Natives of *Miletus*; and afterwards *Pythagoras*, of what Country unknown, but usually called of *Samos*, so famed, as the Constitutor of the *Italic Sect*, and who assiduously pursued his Master's Steps, both in his Studies, and in his Travels.

Thales, in this his Retirement, was courted by many, but cautiously avoided either attending, or receiving any Favours from them. He was often visited by *Solon*, and is said to have taken great Pleasure in the Conversation of *Thrasylbulus*, whose excellent Wit caused our Philosopher to forget that he was Tyrant of *Miletus*.

There flourished, at the same Time with him, six others, distinguished for their singular Wisdom by their Morals, Rules, and Practice; but the Epithet of *Wise* was given to *Thales* for his speculative Learning.

Laertius, and with him various other Writers, agree, that he was the Father of the *Greek Philosophy*, the first that made any Researches into natural Knowledge, or Enquiry into Mathematics.

His Doctrine was, that Water, Moisture, or Humidity is the first Principle of natural Bodies, whereof they consist, and whereinto they resolve; and that *God* is the Mind, which formed all Things of Water.

Of the World, he taught, there was but one, and that made by *God*; that it is disposed in due and regular Order, and that *God* animates the whole.

In *Geometry* he is said to have been an Inventor, as well as an Improver; a Science that had its Birth by Necessity in *Ægypt*,
where

where *Thales* acquired his primary Instruction, as Commerce first gave Being, by the like Necessity, to *Numbers*.

He gave the first Light into the Knowledge of scalenous, and other Triangles, many of which *Euclid** has digested into his *Elements*; but that for which he is more particularly celebrated, as being, according to *Laertius*, his Invention, is what now appears as the 47th Proposition of *Euclid*, *That the Sums of the Squares of the two lesser Sides of a right angled Triangle is equal to the Square of the greater Side*; which is, however, disputed as the Invention of his Disciple *Pythagoras*. But all the Writers agree, that he was the first, even in *Ægypt*, who took the Height of the Pyramids by the Shadow, in the Manner the same is now usually effected, and therefore needs not any Illustration.

As an *Astronomer*, he divided the celestial Spheres into five Circles, or Zones, the *Artic*, the *Summer Tropic*, the *Equator*, the *Winter Tropic*, and the *Antartic Circle*, placing the *Zodiac* under the three middle Circles, touching them all as it passes, and each of them cut in right Angles by the Meridian, that extendeth from Pole to Pole: Which have unjustly been ascribed to more modern Discoveries.

He first observed the apparent Diameter of the Sun, which he concluded to be the 720th Part of the Circle or *Zodiac*, which he appears annually to describe about the Earth, which is divided into 360 Degrees; and first discovered the Constellation of the lesser Bear.

He likewise first observed the Nature and Course of *Eclipses*, and calculated them to an Exactness; one in particular, about the 50th Olympiad, memorably recorded by *Herodotus*, as it happened on a Day of Battle between the *Medes*, and *Lydians*, which, *Laertes* says, he had foretold to the *Ionians*. And the same Author informs us he divided the Year into 365 Days; but this Division he seems to have had from the *Ægyptians*. *Plutarch de placit. Philos.* not only confirms his general Knowledge of *Eclipses*, but that his Doctrine was, that an Eclipse of the Sun is occasioned by the Intervention of the Moon, as may be seen in a Basin of Water, or Looking-glass; and that an Eclipse of the Moon is caused by the Intervention of the Earth.

B 2

The

* Lib. 1. Def. 17. — Prop. 5. — Prop. 15. Id. 26.

The Writers of his Life agree, that he was addicted to judicial Astrology; and *Tully* thinks there is something in that Science, and of his Acquaintance there-with, which he aims to confirm by the following Story:

That *Thales* being upbraided for his Poverty, resulting from the Study of Science, and foreseeing by his Skill in Astrology, there would be a Plenty of Olives that Year, he purchased all the Gardens about *Miletus* and *Chios*, and thus having acquired a Monopoly, disposed of them again at high Prices, and then told his Neighbours, that it was very easy for Men of Learning to be rich if they chose it, but that Wealth was not their Aim.

Laertius, and some others, agree with *Tully* in the Notion of this being an Astrological Prediction, which is far from being a clear Point: It is sufficient, that he was capable of making a good Judgment of the approaching Season, and that it would be such a Season, as wherein Olives are usually most plentiful. This, however, sufficiently evinces, that he had more worldly Wit than his Neighbours conceived, when he thought proper to employ it; as is the Case of most studious Men, when they turn their Attention that Way, and affect the Object, as by Study they acquire a Sagacity and Penetration not common to the In-attentive: But, as Self-interest is the ruling Passion of our Natures, Men turned only to the Attainment of Wealth, will, with some Reason, smile at those who reduce themselves to Poverty, in order to make others learned.

It is a sufficient Illustration of the Wisdom of *Thales*, that he was the Inventor, or Improver, in many Branches of useful Knowledge; and whether right or wrong in his Contempt of Wealth, his Sagacity in other Respects superior to most Men.

His *Morals* were as just, as his *Mathematics* well grounded, and his Judgement in civil Affairs equal to either; so that his Knowledge was as general, as the Good of Mankind his Care; and as we have given a brief Account of his Skill in Science, it may not be amiss to give here a concise Taste of his *Morals*, summed up in a few Lines.

*Fear e'er thou sin, thyself, tho' none be nigh,
Life fades, a glorious Death can never die;*

Let

The LIFE of THALES. 5

Let not thy Tongue discover thy Intent,
 'Tis Misery to dread, and not prevent.
 He helps his Foes that justly reprehends;
 He that unjustly praiseth, harms his Friends;
 That's not enough, that to Excess extends.

He was very averse to Tyranny, and esteemed Monarchy little better in any Shape; he was used to say, That a Tyrant; who chuseth rather to command Slaves than Freemen, is like an Husbandman who preferreth the gathering of Locusts and catching of Fowls, to the reaping of Corn.

Concerning his Writings, it remains doubtful whether he left any behind him. *Augustine* mentions some Books of *Natural Philosophy*; *Simplicius*, some written on *Nautic Astrology*; *Laertius*, two Treatises on the *Tropics* and *Equinoxes*; and *Suidas*, a Treatise on *Meteors*, written in Verse.

His Death happened in Point of Time as is said above; the Occasion appears to have been his attending the *Olympic Games*, where, oppressed with Heat, Thirst, and the Weakness of his Years, he, in public View, sunk into the Arms of his Friends.

He was buried, according to his own Appointment, in an obscure Part of the *Milesian Fields*, where he predicted in future Times their *Forum* should be.

NOTES.

Page 1. Line 2. An *Olympiad* was a Measure of Time used by the antient *Grecians*, consisting of 4 Years; it was first instituted by *Iphitus*, in the Year of the World 3174, on Account of the *Olympic Games*, which were celebrated every 5th Year in the Planes of *Elis*, near the City of *Olympia*, in Honour of *Jupiter Olympius*.

Page 2, Line 22. The Seven Wise Men, were *Thales*, *Solon*, *Pittacus*, *Periander*, *Cleobulus*, *Chilo*, and *Bias*, greatly renowned through all Antiquity.

Page 2, Line 30. That this Doctrine (tho' very antient) is not wide of the Truth, appears by many modern Experiments on the Nature of Vegetation of Plants and the Animal Oeconomy, the Generation of Metals and Fossils, &c. as we shall shew in its proper Place.

ANAXIMANDER.

ANAXIMANDER, a *Milesian*, Countryman, Companion, Kinsman, Disciple, Successor, and Propagator of the Doctrine of *Thales*, was born in the 42d *Olympiad*. He demonstrated the Compendium of Geometry, and first published a Geographic Table. As early as the 50th *Olympiad* he publicly explained the Obliquity of the *Zodiac*, and invented the *Gnomon*. He was Master of every Branch of *Astronomy*, imputed to *Thales*; and if *Tully* and *Pliny* may be depended upon, he was deeply skilled in *Natural Philosophy*, predicting the famous Earthquake that overturned the City of *Sparta*, and tore away Part of the Mountain *Taygetus*; he wrote, as *Suidas* informs us, a Treatise *De Naturâ*: as also one on the *Sphere*, and divers others,

He is said to have differed from *Thales*, holding *Infinity* to be the Principle of all Things; but this, perhaps, is not different, as it is not explained what is meant by *Infinity*, unless this mystical Expression elucidates his Intention: That, *it is one infinite in Magnitude, the Parts thereof changing, the Whole immutable, out of which all Things proceed, and into which all Things resolve*. Hence, that there are infinite Worlds generated, which corrupt and degenerate into that from whence they proceeded.

The various Writers of his Life, considering him as an Astronomer, seem in many Instances either to have misunderstood him, or given us their own Absurdities, for his Opinions; they are therefore, replete with Contradictions, I shall for that Reason only recite such as are consistent with themselves. He held the Doctrine of *innumerable Worlds*; That *the Orb of the Sun is 28 times bigger than the Earth*; and that *the Moon hath a thin Light of her own, besides that which she borroweth from the Sun*.

His Opinions concerning *Meteors* are the same as those espoused by the best Philosophers of later Ages; and his Notion of the Origin of *Beings* was, that the first Creatures were generated in Humidity, which is the same as *Thales* taught, of Water being the Principle of all Things; whence it may be concluded, that *Anaximander* distinguished between Principle and Element.

The Time of his Death is no where ascertained, so as to agree with his Birth, Age, and his being the Successor of *Thales*:

For

For which Reason I shall leave that Particular unnoticed, as a long Criticism on that Head is not material to the present Purpose.

ANAXIMENES.

ANAXIMENES was first the Disciple of *Thales*, and afterwards an Auditor of *Anaximander*; he was of the same Country with both, and the Successor of the latter. He held *Air* to be the Principle of the Universe, of which all Things are engendered, and into which all resolve. That *Spirit* and *Air* are only two Words signifying the same Thing. His general Opinion of the *Heavens* and *Meteors*, was the same as his Masters; and of the Cause of the *Rainbow*, the same as in modern Philosophy: That *Earthquakes* proceed from the Rarity and Dryness of the Earth, from Excess of Heat, or Cold; the latter he called *Contraction*, or *Condensation*, the former *Laxation* or *Rarity*: Thus illustrated, a Man's Breath compressed by his Lips and condensed, is cold, (as when we blow on any Thing to cool it,) but issuing from an open Mouth, is hot, by reason of its Rarity. And more than this we do not find concerning him.

ANAXAGORAS.

ANAXAGORAS was a Native of *Glazomena*, and born in the 67th *Olympiad*. He was eminent for his noble Birth and wealthy Possessions, but more for his Contempt of them, which he quitted for the Delights of Philosophy, turning his Thoughts from Civil Affairs to the Acquisition of Natural Knowledge; but for his Improvidence herein *Plato* highly blames him, because a Competency might rather assist, than be an Impediment to him in the Attainment of human Wisdom. Being asked, Why he had no Regard to his Country? he, pointing to the Heavens, answered, *My greatest Regard is to my Country*. And again, To

8 BIOGRAPHIA PHILOSOPHICA.

what End he was born? he answered, *To contemplate the Sun, Moon, and Heavens.*

In the 20th Year of his Age he went to *Athens* to study Philosophy, and continued there 30 Years. He is reputed the first who added *Mind* to *Matter*, and on that Account he was honoured by the *Athenians*. Some of his Cotemporaries, however, disputed his Right to this Honour; alledging, That this Sentiment was taught much earlier, as no Doubt it was, tho' not in that Country.

His Opinion of a supreme Being was much clearer, more rational, and intelligent; than any of his Predecessors in *Greece*; he held that GOD is an infinite self-moving Mind, and the efficient Cause of all Things; that the same divine Mind, out of infinite Matter consisting of similar Parts, made every Thing according to its Species, reducing into Order what was before confusedly mingled together. His Conceptions of Nature were, That the upper Regions were replete with Fire, and the operative Power there he called *Æther*. His Notion of the *Sun*, that it was a burning Plate, the common Opinion of that Time; but that the *Moon* was a dark Body enlightened by the *Sun*, habitable, having Hills, Plains, and Waters; that the Inequality in her Face proceeded from a Mixture cold and Earthy, and that the *Milky Way* is the Light of some Stars.

The *Winds* he conceived to proceed from an Extenuation of the Air by the Sun: And that *Earthquakes* are caused by the Air, apt to ascend, but finding Difficulty in getting out, causeth that Perturbation, effected principally by the exterior, at certain Times breaking in upon the interior Air, and there producing the same Force as we perceive, when, upon the Collision of the Clouds, and Motion of the agitated Air, they produce Thunder and Lightning.

His Thoughts concerning the Animal World, That Creatures were first generated by Humidity, Calidity, and earthy Matter.

That the Voice is produced by the striking of the Wind against firm resisting Air, returning the Counter-blow to the Ear; which is the Manner whereby also the Repercussion of the Air is formed called *Echo*; and that the *Gall* is the Cause of acute Diseases, which, over-flowing, is dispersed into the *Lungs, Veins, &c.*

Laertius

Laertius assures us, that this *Anaxagoras* studied Natural Philosophy in *Athens* for 30 Years successively, and that *Pericles* the Son of *Xantippus*, *Archelaus*, the Son of *Apollodorus*, *Euripides*, the celebrated *Grecian* Poet, and *Socrates*, the Son of *Sophroniscus* (with a great Number of other Auditors too tedious here to enumerate) were his favourite Pupils, and gave constant Attendance to his Lectures.

Laertius likewise mentions *Metrodorus* of *Lampsacum* as an intimate Friend, and One, who paid him all the Marks of the highest Esteem and Veneration on Account of his profound Learning.

Though there are some Historians, indeed, who affirm, that *Democritus*, notwithstanding he was 40 Years younger than *Anaxagoras*, was one of his Disciples; yet *Laertius* endeavours to confute that Notion; for he peremptorily insists, that *Anaxagoras* was so far from giving him any friendly Instructions, that he conceived an implacable Aversion to the Man, and industriously shunned all Familiarity and Converse with him. And *Phavorinus* assures us (as a Confirmation of this natural Disgust) that *Democritus*, perceiving such a singular Coldness in *Anaxagoras*, and his too visible Neglect of his proferred Friendship, professed himself an open Antagonist, and absolutely denied, that the Doctrines which he advanced in regard to the Sun and Moon were just; and asserted, in order to depreciate them, that he had only imbibed some favourite Tenets of the Antients, and, like a Thief, had palmed them on the Public for his own Conceptions; in a Word, that his Description of the World and his Sentiments concerning the Mind were very erroneous, imperfect, and altogether unworthy the Attention of the Curious.

This *Anaxagoras* endeavoured (as much as in him lay) not only to instruct his Disciples in the Grounds of Natural Philosophy; but to free their Minds from all superstitious Terrors, arising from their Want of Knowledge and Penetration into physical Causes; and the following Instance, (amongst many others which might be produced) will be sufficient to convince the Reader of his profound Knowledge in that particular Science. The Incident was this; the Head of a Ram was one Day produced before his Pupil *Pericles*, with but one Horn; which, by the *Magi* or *Soothsayers* at that Time, was looked upon as a Prodigy;

the Pupil brought it to his Master, who immediately, to convince him of the Folly of such superstitious and enthusiastic Notions, dissected it before his Face, and demonstrated, that the Ram's Brains lay out of their natural Situation, and had by Degrees, been contracted into an oval Form towards that Part where the Horn grew.

Some Years after this, finding himself infirm, decrepid, and greatly neglected by his Pupils, to what he had been, he grew melancholy, and so weary of the World, that, in a Fit of Resentment, he rashly resolved to starve himself, and be no longer the too visible Object of Contempt.

Laertius, however, gives him quite another Character, and much more to his Reputation and Advantage. There are various Conjectures, says he, in regard to the many Misfortunes which he laboured under during his old Age.

Sotion insists, that he was charged by one *Cleon* with Impiety towards the Gods; and with maintaining that impious Notion of the Sun's being a burning Plate; but that his Cause was so strenuously espoused by his Pupil *Pericles*, that when his Case came impartially to be heard, instead of having Sentence of Death past upon him (as his Enemies not only wished, but fully expected) he was only fined five * Talents, and banished for a short Time.

Satyrus, however, peremptorily insists, that he was summoned before the Court, by *Thucydides*, who was of the contrary Party to *Pericles*, and accused, not only of maintaining impious and false Doctrines, but of Disloyalty, and holding secret Correspondence with the *Persians*; and that, though he was absent, Sentence of Death was instantly past upon him; that when the News was brought him, not only that his two Sons were actually dead, but that he himself was to be executed as a Traytor to the Government, he was so far from being dejected and cast down (as was before hinted in regard to his Intention of *Suicide*) that he heard the melancholy Relation, with such an amazing *Æquanimity*, and Presence of Mind, that he only made the following Answer (without the least visible Emotion or Concern) "You tell me Nothing new or unexpected. Nature has long since condemned both my Sons and me to Death. As to them, I know

" very

* An *Attic* Talent was equal to 139*l.* 15*s.* Sterling.

“very well that I begat them Mortals.” And *Demetrius Phalareus* assures us, that he interred them Both with his own Hands,

Hermippus, on the other Hand, insists, that he was actually imprisoned in order to suffer Death; but that *Pericles* before-mentioned appearing before the Judges in his Defence, procured his Discharge; but that he laid violent Hands on himself, in the Goal, not having Courage sufficient to support himself under that public Disgrace.

Hieronymus and *Laertius* both insist, that his Friend *Pericles*, when his Trial came on, brought him into Court in such a poor, tattered Condition, and so greatly emaciated with Sickness, that he appeared to the Judges rather as an Object of their Compassion than their Justice.

Suidas again tells us another Story; and insists, that the *Athenians* threw him into Prison for introducing new and heterodox Notions concerning the Supreme Being; and afterwards banished him to *Lampsacum*, where he starved himself to Death.

Josephus says, that the general Notion, prevailing over all *Athens*, that the Sun was the Supreme Being, or God, which *Anaxagoras* affirmed to be without all Sense or Knowledge, he was by the Votes of some of his Judges sentenced to die for his impious and prophane Doctrines.

If, however, we will give Credit to *Plutarch*, who is an Historian, of equal, if not superior Reputation to any of the others before quoted, he was neither condemned nor censured by any Persons whomsoever, but by *Pericles* himself.

His Departure from *Athens*, however, some insist, was no less than 30 Years after his Arrival at that City, that is to say, in the 3d Year of the 82d *Olympiad*, and in the 63d Year of his Age; from whence he went to *Lampsacum* abovementioned; where he resided for two and twenty Years successively, and was so regardless either of the Interest and Advantage of the *Athenians*, or his own Country, that he said they were more obliged to him than ever he was to them; and when he fell sick, according to *Cicero*, being asked by his Friends whether he would be conveyed to *Clazomene*, his native Country; he answered in the Negative, saying, “that it was altogether needless, since the Road to the Grave “was every where alike.” And *Plutarch* assures us, that before his Decease, the Magistrates of the City asked him if there were any

Favours in their Power to confer upon him? To this his Answer was somewhat ludicrous, though innocent enough; all I desire is, that the Youth of the Place may be indulged with an annual *Play-day*, on the Day of my Decease; which Custom (according to *Laertius*) was religiously observed for many Years afterwards.

He was interred some few Days after his Death by the Inhabitants of *Lampsacus*, in a very magnificent and pompous Manner, with an Inscription on his Monument; intimating, that under that Stone lay the venerable *Anaxagoras*, and the greatest Philosopher of his Age.

There were two Altars erected to his immortal Memory, if we will confide in *Ælian's* Account of him; One inscribed to the *Mind*; the Other to *Truth*.

Laertius, whom we have quoted so often, and who has given us some valuable Memoirs of his Life, concludes it with the following Epigram.

*Fam'd Anaxagoras the Sun defin'd
A burning Plate, for which to die design'd;
Sav'd by his Pupil Pericles; but he
Abandon'd Life, to sad Philosophy.*

As to his Writings, we are told by *Laertius*, that he was the first that published any Treatise of Natural Philosophy, which was censured by *Plato*, but whether with just Grounds or not, we shall not take upon us to determine.

He published likewise another Treatise, entitled, *The Quadrature of the Circle*, which *Plutarch* assures us, that he wrote during the Time of his Imprisonment.

There were three Others (according to *Laertius*) of the same Name, viz. a celebrated Orator, and Disciple of *Isocrates*; the Second, a Statuary taken notice of by *Antigonus*; and the last, a Grammarian, a Disciple of *Zenodotus*: To say any more of them, however, would be foreign to our Purpose.

We shall conclude this short Account of him with his few memorable Maxims, viz.

I. Being once asked whether the Mountains of *Lampsacum* would, in Process of Time, become Sea? His Answer was, Yes; in Case Time did not fail first.

II. Upon his taking a transient View of the Tomb of *Mausolus*; he said, a sumptuous Monument was a Demonstration, that the Substance was converted into Stone.

III. He peremptorily asserted, that *Homer's* poetical Productions consisted of Virtue and Justice; to which another added the following short Encomium, that he was an able and experienced natural Philosopher.

IV. He conceived, that the Time before our Birth, and the Time we are asleep, are both Lessons of Instruction and Importance.

A R C H E L A U S.

WHETHER *Athens* or *Miletum* was the Place of his Nativity; or whether he was the Son of *Apollodorus*, or of *Mylon*, Historians are not fully agreed: He was a constant Attendant, however, on the Lectures of *Anaxagoras*, and some considerable Time afterwards Tutor to the celebrated *Socrates*.

Notwithstanding, he is said to be the first that ever transferred natural Philosophy from *Ionia* to *Athens*, and was dignified with the Title of *The natural Philosopher*, by Way of Pre-eminence; yet *Cassaubon* peremptorily denies that Circumstance to be real Matter of Fact, and not without very just Grounds; for it was very well known, that his Tutor *Anaxagoras* had taught natural Philosophy in that very City for thirty Years successively, before *Archelaus* assumed the Character, or Office, of a public Preceptor.

He was the last, indeed, that devoted the principal Part of his Time to that peculiar Study; for his great Pupil *Socrates* was afterwards a Professor of Morality, and more famous on Account of his Golden Maxims and Precepts for the Conduct of Life, than for his extraordinary Penetration and Researches into Nature.

Notwithstanding this, it must be allowed, that *Archelaus* had some Insight into moral Philosophy before him; for he had wrote a Treatise on the Laws, and on Things honest and just, before *Socrates* was in any Repute; and 'tis highly probable, that he was indebted to his Master's Works for his first Hints in that particular Branch of useful Knowledge.

'Tis true, indeed, that *Socrates* carried it to a much higher Pitch of Perfection, and for that Reason was generally looked upon as the Inventor; however, he could not possibly be so in Fact; for (as *Gassendus* very justly observes) moral Philosophy was of a much more antient Date.

The seven Philosophers, before mentioned in the Life of *Thales*, had the Attribute of *Wise* conferred upon them, principally on Account of their profound Skill in *Œconomics*. It must be allowed, however, that *Socrates* had some Right and Title to the Honour of being the Author of that Philosophy; since he was the first that ever reduced it into a Science.

All we have to add here in regard to this *Archelaus*, are the peculiar Doctrines which he maintained.

I. He held, that the Mind, and the Rarefaction and Condensation of the Air, (whereof one was Fire and the other Water) were the Principles of all Things.

II. That Heat and Cold were the two Causes of Generation.

III. That the Stars were all burning Plates, and that the Sun was by far the largest of those Stars.

IV. That all Animals, of what Species soever, were produced from a Sort of Slime, or warm Earth; that such humid Matter being dissolved by the Fire; such Part of it as settled into a fiery Substance was the Earth, and that which evaporated was the Air.

V. That the Motion of the Earth was owing to the violent Impulsion of the Winds, one upon another.

VI. That the Voice was a Percussion of the Air.

VII. And Lastly, that what was just or dishonest was defined by Law, and not by Nature.

These five Philosophers, namely, *Thales*, *Anaximander*, *Anaximenes*, *Anaxagoras*, and *Archelaus*, gradually succeeding one another, compleat the *Ionic* Sect.

T H E

ACADEMIC PHILOSOPHERS.

P L A T O.

AS *Socrates* was the Pupil of *Archelaus*, the last of the *Ionic* Sect, as before hinted, our Readers may probably expect, that we should first give an Account of that *great Man*, before we enter on the Life of *Plato*; but as he wholly applied himself to the Study of Morality, and neglected both natural Philosophy and the Mathematics, it would be foreign to our Plan to say any Thing more of him, than that he was the truly venerable Tutor of this Founder of the *Academic* Sect, who were so distinguished from the Place called *Academia* (a pleasant Grove with shady Walks and Seats) at *Athens*, in which the Professors of Philosophy daily taught their Disciples.

This *Plato*, then, was an *Athenian* by Birth; notwithstanding there are some Historians who tell us, he was a *Theban*. He was the Descendant of a very antient and illustrious Family; but we shall not here expatiate on his Pedigree; for we doubt not but it will be sufficient for our Purpose, to assure our Readers, that his personal Merit ennobled him much more than his high Descent. Historians, indeed, widely differ in Point of the Time when he was born; but most of them allow, that it happened in one of the Years of the Eighty-eighth Olympiad.

He was peculiarly happy in being inured, even in his Youth, to Hardships and Fatigues; and in taking a great Delight in Study, and the Practice of every Virtue; which Virtues increased in him gradually with his Years. *Laertius* assures us, that he received his first Rudiments of Learning from *Dionysius*, the Grammarian; and the Art of Wrestling (a manly Exercise then in high Repute, as being one of the *Olympic Games*) of one *Aristo* an *Argive*.

It was this Tutor of his, who gave him the Name of *Plato*; for he was named *Aristocles*, by his Parents, after his Grandfather,

father, when an Infant, which Name, however, was worn out by Degrees, and he retained the former to his dying Day.

As to his Person, he was very robust, and remarkably broad-shouldered, to which his new Name alludes; and, in short, Nature was peculiarly indulgent to him. He had one Imperfection, however, and that was (according to *Timotheus*) a slow Voice, or, more properly speaking, an Impediment in his Speech.

As he grew in Years, he applied his Mind very closely to Music, Painting and Poetry; and he arrived, by that Time he was Eighteen Years of Age, to such a Pitch of Perfection in the last, that he not only wrote several select Poems, but four dramatic Entertainments (as was then the Custom) which he delivered to the Players, in order to be acted, proposing at that Time to stand Candidate for the Laurel on the *Olympic* Stage; but hearing, by Accident, on the Day preceding that of the intended Representation, a long and learned Harangue of *Socrates* before the *Bacchanals* on the same Stage, he dropt his intended Contest all at once, and charmed with his Elocution, set Fire to all his poetical Productions that very Night.

When he arrived at the Age of Twenty, he became a Disciple of *Socrates*, and studied Philosophy under that accomplished Moralist, about the 4th Year of the 92d *Olympiad*.

He lived with *Socrates* for eight Years successively, in which Time he committed to Writing (as was customary amongst his Brother-Pupils) the Purport of a great Number of his Master's most excellent Discourses, which he digested by way of philosophical Conversations; but made so many judicious Additions and Improvements, that *Socrates* himself, hearing him rehearse one Day his *Lyfis*, cried out, Oh, *Hercules*! How many fine Sentiments does this young Man ascribe to me, that I never thought of! And *Laertius* assures us, that he composed several Discourses which *Socrates* had no Manner of Hand in. At the Time when *Socrates* was first arraigned, which happened in the first Year of the 95th *Olympiad*, our *Plato* was a junior Senator, it is true, but then he was at least Thirty Years of Age; for according to *Solon's* Law, no one was allowed to sit in the Senate-house under that Age. The Judges being highly disgusted at the Deportment of *Socrates*, *Plato* assumed the Orator's Chair, in order to plead his Master's Cause; but was interrupted in the ve-

The Judges, in short, were so far exasperated against *Socrates*, that they pass Sentence of Condemnation upon him. *Plato*, however, begged of him to accept of such a certain Sum as would be sufficient to purchase his Enlargement, but *Socrates* peremptorily refused the generous Offer.

Plato, finding his Master thus obstinately bent on his own Ruin and Destruction, left *Athens* with Tears in his Eyes, and withdrew, being accompanied by several of his Brother-pupils, to the Habitation of one *Euclid*, who entertained them all in the most hospitable Manner, 'till the Storm was blown perfectly over.

Notwithstanding the high Opinion he conceived of *Socrates* and his Doctrines, which doubtless were just and beautiful enough; yet all of them were insufficient for the filling of his capacious Mind: He thirsted still (says *Cicero*) to drink larger Draughts from the Fountains of Learning, and determined (as he had unhappily lost his Master) to travel to any Place, how remote soever, for the Improvement of his Studies.

Accordingly his first Expedition was to *Italy*, where he had heard large Encomiums of the *Pythagorean* Philosophers, who resided in those Parts; and in their Schools it was (as they themselves boast) that he received his first Instructions in natural Philosophy. Being conscious to himself, however, that, if he would but travel into more remote Parts, he should be able to make still farther Improvements, he went from thence directly to *Cyrene*, where he studied Geometry, and some other useful Parts of the Mathematics, under one *Theodorus*, who was at that Time universally admired as an Adept in that particular Science.

From thence he travelled into *Egypt*, and acted there in the Capacity of an Oil-Merchant; but the Advantages arising from Traffick were the least Part of his Concern; his principal Aim was, to pry as narrowly as possible into their Institutes of *Arithmetic* and *Astronomy* (as *Cicero* assures us) and to be fully informed of all the Ceremonies and religious Customs of their Prophets.

He travelled all over the Country (according to *Valerius Maximus*) and informed himself, by holding frequent Conversations with the Priests wherever he went, of all their Notions with respect to *Geometrical* Proportions, and the various Motions of the

Celestial Bodies: And during the Time that the young Students at *Athens* were enquiring after *Plato*, in order to become his Disciples, he was employing himself in taking an accurate Survey of the Banks of the River *Nile*, the vast Extent of the Country, and the meandering Compass of its Trenches, and in acting as a Pupil under the Instructions of some of the wisest as well as oldest of the *Egyptians*.

Having finished his Survey to his own private Satisfaction, he at last settled himself in the Province of *Sais*; where he learned, from the wise Men of that Place, the Notions which they held concerning the Universe, its Nature and Origin, the Motion of the heavenly Bodies, &c.

From the Natives of this Place (as *Pausanias* assures us) he learned the Doctrine, not only of the Immortality, but the Transmigration of the Soul into various Bodies.

Having resided there a sufficient Time, he determined to re-visit *Italy*, and accordingly arrived there safe, and settled himself at a Place called *Tarentum*, where he kept Company principally (according to *Cicero*) with *Eurytus* the Elder, and one *Archytas*.

Thus he added to what he had learned from *Socrates* and from the *Egyptians*, the Doctrine of *Pythagoras*; and informed himself in several Articles, which *Socrates* totally neglected, as not thinking them any ways essential to the Happiness of this Life; for he made nothing, in short, his Study, but the strict Rules of Morality and Logick.

Plato, if we may credit *Eugubimus*, borrowed the mysterious and intricate Part of his Philosophy, but more particularly that which relates to the divine Goodness, from *Hermes Trismegistus*. It is to be presumed, however, that this Assertion was grounded rather on his own Conjecture, than any real Authority that he had to support it. 'Tis imagined by some, that *Plato* received abundance of Information from the sacred Writings of *Moses*. *Josephus* tells us, that in divers important Articles *Plato* copied after their great Law-giver: And another Jewish Author asks the following Question, What is *Plato*? and then returns this immediate Answer, viz. Nothing but *Moses* speaking Greek instead of Hebrew.

Now,

Now, tho' it be true, that there may be some small Affinity between the Writings of *Plato* and *Moses*, yet 'tis highly probable, that he never had any Inspection of the sacred Scriptures; so that the Notion at best is but mere Conjecture.

When *Plato* went to *Sicily*, he purchased (as *Laertius* affirms) the valuable Writings of one *Philolaus*, a *Pythagorean*, who was in great Repute there at that Time. The whole was digested into three several Tracts on natural Philosophy; which were the First (as we are told) that were ever exposed to public Sale in that School. Some will have it, that he procured them from a Friend of *Dionysius* for the Value of four *Alexandrian Minæ*. Others say, that *Dionysius* bought them of a young Gentleman, that was a Pupil of *Philolaus* the Philosopher, and bestowed them on *Plato* as a free Gift. Others again insist, that he sent to *Dion* at *Syracuse*, and requested him to purchase them for him at any Price he thought proper to give, which he bought accordingly, at the Rate of 100 *Minæ*: But, if we may credit *Aulus Gellius*, he says, the Purchase-money amounted to 10,000 *Denarii*. Whatever Value, however, were put upon them, be it more or less, *Plato* could very well afford it at that Time; for not long before he had received no less than 80 Talents from *Dionysius*.

Now out of those valuable Writings, it is generally thought (as both *Aulus Gellius* and *Laertius* positively affirm) that he stole (as the Critics term it) the best Part of his universally admired *Timæus*; for which he is too severely reflected on by one *Timon*, in his *Sillis*, who envied him for his superior Wisdom.

In order to depreciate him, the sarcastical Passage is couched in the three following Lines.

You, Plato, with the same Affections caught,
With a large Sum a little Treatise bought,
Where all the Knowledge which you own was taught.

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Alcimus and *Laertius* likewise tax him with borrowing very largely from *Epicharmus*, the Comic Poet, and both quote several Passages for the Confirmation of what they assert.

Phavorinus, moreover, boldly affirms, that the whole Sum and Substance of *Plato's Commonwealth* is to be met with in

Protagoras's Antilogics. As to his political Writings, they were all stolen (as others with equal Assurance and ill-Nature affirm) from his great Master *Socrates*.

And lastly (to mention no more) *Laertius* assures us, that the most valuable Part of his moral Tracts, are little or nothing more than Extracts from the universally admired Book of *Sophon*, the *Minograph*, which were found under his Pillow at the Time of his Decease.

Now all these several Charges upon him, as a Plagiary, it must be allowed, are very heavy, and the evident Effects of Spleen and Ill-nature; but we think them, in Reality, no Aspersions at all, as they are not only beyond Measure partial, but absolutely unjust.

That he obtained his Learning from the Perusal of the best Authors then extant, and from his constant Attendance on the Lectures which his several Masters read from Time to Time in public, redounds, in our Opinion, greatly to his Credit; and none but those, who envied him for his superior Merit to their own would presume to depreciate him on that Account. On the contrary, his great Improvements drawn from thence are incontestible Proofs of his Judgment and indefatigable Industry in the Course of his Studies; for had the same Authors asserted, that he received it any other Way, it must have been by Inspiration; and had they advanced such an idle Notion, we should have deemed them either void of Understanding, or very partial Historians.

That he borrowed his Thoughts, therefore, from all the Books he could by any Means procure, and from his frequent Conversations with Men of the profoundest Learning, we will readily allow; but then, in case it manifestly appears, that he made large Additions and Improvements to those literary Flowers, from whence, like the industrious Bee, he extracted the best Part of his Honey; and that he turned and applied each Branch of Literature in a widely different Way, or to quite different Purposes than it ever had been applied before; if, in short, it be evident, that he brought to Light, and exposed to public View, what the wise Men of that dark Age so very disingenuously studied to keep concealed, in order to enhance their own Wisdom, and to meet with distinguished Deference and Respect

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from the Vulgar ; if he did nothing more, we say, than this, and that therefore he could not, in a strict and proper Sense, be deemed an absolute Inventor ; yet still he ought, at least, to be highly valued, and looked upon as one of the profoundest Scholars of his Age, and justly merited that high Title by which he was afterwards distinguished, namely, *Plato the Divine*.

Being returned to *Athens*, after his many long and fatiguing Journeys, he settled himself in a particular Spot (at some small Distance from the City) called the *Academy*, as we are told, from one *Ecademus*, which was surrounded with Woods, and reckoned a very unhealthful Situation. *Plato*, indeed, was advised by his Physicians to remove from thence to the *Lyceum*, but he turned a deaf Ear to all their Persuasions ; for he had made choice of it, it seems, as a necessary Corrective to his Corpulency, and with Hopes that it would incline him to fall away. His own Prescription, indeed, met with the desired Effect ; for he soon caught there a Quartan-Ague, which shook him very severely for a whole Year and a Half ; but by the Dint of Temperance, and a very abstemious Course of Life, he at last conquered his Distemper, and recovered his Strength to that Degree, that he was more active and vigorous than ever he had been before his Indisposition.

He went thrice into the Field of Battle. His first Expedition was to *Tanagra* ; his next to *Corinth*, and his last to *Delos*, in which Engagement the Party he espoused became victorious. Thrice likewise he travelled into *Sicily* ; the first Time he went thither with no other View, than to gratify his Curiosity, and be an Eye-witness of the Eruptions of Mount *Ætna*. At that Time he was about 40 Years of Age ; and went to pay the Tyrant *Dionysius*, the Elder, a Visit, who had testified a great Inclination to have some Converse with him. The Liberty, however, which he took in discoursing on the Topic of Tyranny had like to have cost him very dear ; and his Death had proved, in all Probability, the fatal Consequence, had not one *Dion* and *Aristomenes* pleaded hard in his Behalf. Tho' the Tyrant, indeed, thro' their Intercession, spared his Life ; yet he shewed his Resentment so far, that he delivered him up to one *Polides*, a *Lacedemonian* Ambassador, at that Time resident at *Dionysius's* Court, with express Orders for his being sold as a Slave. That

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Ambassador soon after conveyed him away to *Egina*, and there executed the Tyrant's Commission. The Natives of that Place had passed a Law, by Virtue whereof, every *Athenian* was strictly enjoined not to enter their Island upon Pain of Death. His Presumption, therefore, was insisted upon by one *Charmander*, the Son of *Charmandrites*, as a capital Crime, and that he ought in Justice to die for so open a Violation of their Laws: But some Persons then present, not being so very vindictive, made a nice Distinction in his Favour; namely, that such Law was made to deter *Men* from approaching their Island, but not *Philosophers*. This Distinction prevailed; and they contented themselves with punishing him no farther than by selling him for a Slave. Very providential was it for poor *Plato*, that one *Anniceres*, a Native of *Cyrene*, happened at that Time to be resident in the Island, who purchased him for the Consideration of twenty *Minæ*. No sooner was the Money paid, but his new Master very generously took the first Opportunity of sending him back to *Athens*, and restoring him to his Friends. As for *Polides*, the *Lacedemonian*, who had sold him first, he was defeated by one *Cabrias*, and was afterwards thrown headlong into the Sea, as a just Punishment for the severe Afflictions which he had caused so divine a Man as *Plato* to undergo; and if the Report may be credited, he was informed by an Apparition of his approaching untimely End.

Dionysius the Elder being informed that *Plato* was arrived once more at *Athens*, in a State of Freedom, contrary to his Expectations; was under some Apprehensions that *Plato* would study some Way or other to gratify his Rage and Resentment, for the Indignity that had been offered him; he wrote, therefore, a very complaisant Letter to him, wherein he, in Effect, tho' not in direct Terms, begged his Excuse for degrading him as he had done; and insinuated, that it was with Pleasure, he heard of his residing again amongst his Friends. *Plato*, however, sent but a very cold Answer to the Tyrant, which was to this or the like Effect, *viz.* "That he need not give himself any great
 " Concern about what had passed; for his Thoughts were so
 " much taken up with the Charms of Philosophy, that he had no
 " Time to spare in the Gratification of any private Resentment."

To some of his Detractors, who upbraided him, some Time afterwards, with his being discarded by *Dionysius* the Tyrant; he

he made Reply, that it was a false Assertion, that *Dionysius* had abandoned *Plato*; but the contrary is true, that *Plato* has abandoned *Dionysius*, as a Tyrant, and the just Object of his Scorn and Contempt.

He went the second Time to *Sicily*, in the Reign of *Dionysius* the younger, with a View to prevail on that Tyrant, if possible, to restore his Fellow-Citizens to the Enjoyment of their former Privileges; or, at least, to treat his Subjects with more Lenity than his Father had done before him; but after he had resided there for four Months, and perceived plainly, that the Tyrant turned a deaf Ear to all his Solicitations in Favour of his Countrymen; that he had moreover sent his good Friend *Dion* into Exile, and continued resolute to tread in the Foot-steps of his tyrannical Predecessor, he went back to *Athens*, highly disgusted, notwithstanding the Tyrant pressed him very earnestly to tarry at his Court, and used his utmost Endeavours to convince him, that his Friendship and Respect for him was perfectly sincere.

The last Time he went to *Sicily* was, with a View to solicit the Tyrant once more in Favour of his Friend *Dion*, and prevail on him, if possible, to divest himself of his despotic Power; but as *Dionysius* had promised faithfully, that *Dion* should be restored, and paid no Regard, in Effect, to his most solemn Engagements, he took the Liberty to upbraid him for his Want of Sincerity in such warm Terms, that provoked the Tyrant to so high a Degree, that he run the Risque of his Life; and in all Probability he had been actually cut off, had not *Archytas* of *Tarentum* sent an Ambassador to him on Purpose to require him at his Hands, and a Vessel likewise for his Embarkation. *Dionysius*, at the Intercession of *Archytas*, did not only permit him to go on board, but furnished him with all the necessary Provisions for his Voyage. Thereupon *Plato* withdrew to *Athens*, with an Intention never to depart from thence again: Upon his Arrival he was received with all the public Testimonies of the highest Deference and Esteem; but notwithstanding they entreated him to take upon him the Reins of Government, he peremptorily refused to accept of the Honour of so important a Post, as firmly believing, that, in the Midst of such a general Depravation of Manners; there were no Hopes of making any considerable Reformation.

No greater Testimony, however, can possibly be produced of that high Veneration and Esteem which all *Greece* had for him, than the following remarkable Circumstance which actually happened at the *Olympic Games*. He was there received more like a God descended from the Clouds, than a mortal Man: For the countless Multitude, who were excessive fond of all Sorts of public Shews, and had flocked thither from all Parts of *Greece*, in order to be Spectators of the *Olympic Games*, which were always executed with the utmost Pomp and Magnificence, abandoned at once, not only the Diversion of their various Races, but of their Athletic Encounters likewise, for no other Pleasure than that of gazing on the Man of whom they had heard so many marvellous Relations.

He spent his whole Life in a State of Celibacy, and kept up to the strictest Rules of Temperance, and Self-denial. He was of so reserved a Temper, even in his Youth, that he never was known to express a Pleasure, with any greater Emotion than that of a Smile; and he had such a perfect Command of his Passions, that nothing could provoke his Anger or Resentment. And we are told, by way of Confirmation, that a young Pupil of *Plato's*, who had resided with him for some considerable Time, going accidentally home to pay a Visit to his Relations, was so perfectly surprized one Day to see his Father in a Passion, that he could not forbear from remarking, that he had never seen any Thing like it at his Master's House. Once, indeed, it happened, that one of his Slaves had provoked him to a very high Degree, by the Commission of some very heinous Fault; but he gave Orders to one of his superior Domestics to correct him; saying, that as he was a little too angry, he was not duly qualified to give him the Chastisement he deserved. Notwithstanding he was naturally of a reserved, and very pensive Disposition; yet, if we may credit *Aristotle*, he was affable, courteous, and perfectly good-natured; and sometimes would condescend to crack little innocent Jokes on such of his Acquaintance as he thought he might make free with. Every now and then he would advise his two intimate Friends, *Xenocrates* and *Dion*, whose Deportment he imagined somewhat too rigid and reserved, to sacrifice now and then to the *Graces*, in order to render their Conversation a little more free and easy.

Plato had a great Number of Pupils ; but the three who made the most distinguished Figure afterwards, were *Spusippus*, his Nephew, by *Potona* his Sister, who was the Spouse of *Eurimedon*, *Xenocrates* the *Caledonian*, and the celebrated *Aristotle*. Some Historians peremptorily assert, that *Theophrastus* was another of his Disciples ; and that the celebrated *Demosthenes* likewise looked upon him as his Master. In a Word, this last-mentioned Pupil, having fled for Shelter to some proper Asylum, in order to secure himself from the Resentment of *Antipater* ; when *Archias*, whom *Antipater* had sent in order to bring him by Force before him, promised him, upon Honour, that he should not lose his Life, in case he would voluntarily resign, and make his personal Appearance : God forbid ! said he, that after I have heard *Xenocrates* and *Plato* discourse so divinely on the Immortality of the Soul, that I should prefer a Life led in Infamy and Disgrace before an honourable Death.

Some Authors assure us, that there were two young Ladies amongst the Number of his Auditors, one named *Lasihemia* the *Mantinean*, and the other *Axiothea* the *Phlyasian* ; both disguised in Men's Apparel, as being deemed by them the most proper Dress for female Philosophers.

He had such a peculiar Affection for the important Science of *Geometry*, that is to say, the true Mathematical Rule of Proportion, that he ordered the following Inscription to be painted in large Capitals over the Door of his Academy. LET NO ONE PRESUME TO ENTER HERE UNLESS HE HAS A TASTE FOR GEOMETRY AND THE MATHEMATICS.

All the Works of *Plato*, except his twelve Letters, which are to be met with only in the Closets of the Curious, are digested, by Way of familiar Dialogues. These Conversations may properly be divided into three different Species ; in the first he confutes the Sophists ; the second is peculiarly adapted to the Instruction of Youth ; and the last are more peculiarly calculated for the Information of such as are more adult, and Persons of the deepest Penetration. There is likewise another Distinction to be made, in regard to his dialogical Discourses ; for whatever Position *Plato* lays down, when he assumes his own Name, either in his Treatise on the Laws, or in his *Epinomis*, he speaks

his own real Sentiments; but whenever he advances any Doctrines in a fictitious Character, that is to say, when he borrows the Name of *Socrates*, *Timæus*, *Parmenides*, or *Zeno*, he only lays them down as probable Conjectures, without any Confirmation of them as his own private Opinion. Notwithstanding, what Words he puts into the Mouth of *Socrates*, in any of his Dialogues, are always in the Taste, and according to the Form and Method of Disputation prescribed by his great Master, we must not always take it for granted, that what he says are the real Sentiments of *Socrates*; since we are informed from very sufficient Authority, that when *Plato* had read in Public his Dialogue entitled *Lysis*, on the Topic of Friendship, which he composed in his Master's Life-time, *Socrates* could not refrain from inveighing against it, crying out, *Ye Gods! what Doctrines has this young Man made me advance, which never once entered into my Thoughts!*

The Style of *Plato*, according to the Testimony of *Aristotle*, his Pupil, was (if we may be allowed the Expression) a Medium between Poetry and Prose. *Cicero* entertained such a peculiar Veneration for the Beauties of it, that he did not scruple to assert, that if *Jove* himself was inclined to talk in any human Language whatsoever, he would never have expressed his Thoughts in any other Style than *Plato's*. *Panætius* distinguished him by the venerable Title of *Homer* the Philosopher; which amounts to much the same Compliment, since paid him by the universally admired *Quintilian*, who, in his Animadversions on the nervous Style of all his Compositions in general, was pleased to say, they were Copies of the divine Writings of *Homer* himself.

His Plan was built on the Sentiments of three very profound Philosophers. He gave entirely into the Notions of *Heraclitus*, in regard to natural and experimental Philosophy, that is to say, such Objects as were open and obvious to the Eye; with respect to the Metempsychosis, or the Transmigration of Souls, and such Truths as were only to be discovered by the Dint of Reflection, he followed very closely the Foot-steps of *Pythagoras*. As to his political and moral Tracts, he made his Master *Socrates* his grand Exemplar, and, in his humble Opinion, no One's Sentiments besides could stand in Competition with them.

Plato,

Plato, if we may rely on the Veracity of *Plutarch*, in his first Book on the Maxims of the Philosophers, admits of three Principles, the Supreme Being, Matter, and the Mind, or Understanding; the first, as the universal intelligent Being; the second as the principal Agent, with respect to Generation and Corruptibility; and the last, as Substance incorporeal, and subsisting in the Omniscience of the Supreme Being. He acknowledged, in Fact, that the Creation of the World was the Handy-work of an omnipotent Being; but that he did not mean by the Term Creation, a Creation in a strict Sense; for he imagined, that the Almighty formed and erected the World (if the Expression may be allowed) in a pre-existent Manner, and that it had no Commencement; insomuch that God, the Creator of all Things, acted, in regard to the World that he had made out of a meer Chaos and Confusion, and to the Form and Fashion which he had given to inanimated Matter, no otherwise than as an able and experienced Architect would do, with respect to his Materials of Timber, Brick and Stone, which he orders and disposes of as he sees most convenient for the Erection of a regular and magnificent Palace, or other pompous, tho' more private Structure.

'Tis universally allowed, that *Plato* had some Knowledge of the Supreme Being, or only true God, either from the Light of Nature, or from an Inspection of the Writings of the sacred Pen-men of the *Old Testament*. It must be acknowledged, however, likewise, that there were Numbers of such Philosophers, *who* (as *St. Paul* expresses it) *having known God, did not glorify him as God*, but were bewildered, and walked in the Dark, following the Dictates of their own vain and foolish Imaginations. In short, he maintained, in his Treatise entituled *Epinomis*, three distinct Deities; that is to say, the superior Gods, middle Gods, and such as were inferior to them both, whom he distinguished by the Name of Demons. In all Probability, *Plato* grounded his Notion of the middle Gods on what is said in the sacred Scriptures concerning the Angels.

Plato likewise maintained the Doctrine of the Metempsychosis, which he borrowed, indeed, from *Pythagoras*, but very greatly improved it, as is apparent from his Dialogues, entituled *Phædrus*, *Phædon*, *Timæus*, &c. Notwithstanding *Plato* published

lished a most excellent Treatise on the Immortality of the Soul; yet he ran into several very gross Errors, not only in regard to the Substance of the Soul, which he imagined to be composed of two distinct Parts; one spiritual, the other corporeal; but with respect to its Origin, maintaining that the Souls of Men were pre-existent, and formed before their Bodies; and that deriving their Being from Heaven, in order to animate, successively, different Bodies, they returned to Heaven after a due Purification; from whence, after the Expiration of a certain Number of Years, they were again employed in animating different Bodies, one after another; insomuch that it was nothing more than one continued Circle or Round of Defilements and Purifications; of Returns to Heaven, and from thence back again to Earth, in those particular Bodies which 'twas their Province to animate. As he was entirely of Opinion, that such Souls never totally forget the various Transmigrations and Scenes of Life, which they had underwent whilst in the different Bodies which they had animated from Time to Time, he conceived, that such Knowledge as they acquired was not new, but a Reflection on, or a Recollection rather of what they knew before; and he grounded these imaginary Recollections on his Dogma, or Tenet of the Pre-existence of Souls.

However, without expatiating any farther on the Doctrines of this Philosopher, which we have transmitted to us but in a very dark and imperfect Manner; we shall only observe, that his Notions on divers important Articles, seemed so novel, and so sublime, that he in reality merited the high and venerable Title which he obtained in his Life-time, namely, that of *Plato the Divine*; and he was, moreover, looked upon by his Successors, after his Decease, but a little lower than one of the Gods. He died in the first Year of the 108th *Olympiad*, in the 81st Year of his Age, and, what is somewhat remarkable, on his very Birthday.

Miscellaneous Correspondence, in Prose and Verse.

For JANUARY, 1755.

To the Publisher of the GENERAL MAGAZINE, &c.

S I R,

IT is with pleasure I observe, that one part of your design, is to oblige mankind with a new system of mathematical learning, and as I think it cannot be too much recommended and encouraged, it will, in my opinion, be highly acceptable to the public, if you give them an account of its exceeding usefulness from an ingenious essay upon that subject, by an anonymous author of the last century, but now out of print; which for a masterly stile, spirit, perspicuity, and strength of reasoning, surpasses any thing I have ever yet met with on that subject.

I am Yours, &c.

A. B.

An ESSAY on the Usefulness of MATHEMATICAL LEARNING, &c.

S I R,

I AM glad to hear from you, that the study of the mathematics is promoted and encouraged among the youth of your university. The great influence, which these sciences have on philosophy and all useful learning, as well as the concerns of the public, may sufficiently recommend them to your choice and consideration: and the particular advantages which you of that place enjoy, give us just reason to expect from you a suitable improvement in them. I have here sent you some short reflections upon the usefulness of mathematical learning, which may serve as an argument to incite you to a closer and more vigorous pursuit of it.

In all ages and countries, where learning hath prevailed, the mathematical sciences have been looked upon as the most considerable branch of it. The very name μάθησις implies no less; by which they were called either

for their excellency, or because of all the sciences they were first taught, or because they were judg'd to comprehend πάντα τα μαθηματα. And amongst those, that are commonly reckoned to be the seven liberal arts, four are mathematical, to wit, Arithmetic, Music, Geometry, and Astronomy.

But notwithstanding their excellency and reputation, they have not been taught nor studied so universally as some of the rest; which I take to have proceeded from the following causes: The aversion of the greatest part of mankind to serious attention and close arguing; their not comprehending sufficiently the necessity or great usefulness of these in other parts of learning; an opinion that this study requires a particular genius and turn of head, which few are so happy as to be born with; and the want of public encouragement, and able masters. For these, and perhaps some other reasons, this study hath been generally neglected,

B

and

and regarded only by some few persons whose happy genius and curiosity have prompted them to it, or who have been forced upon it by its immediate subserviency to some particular art or office.

Therefore I think I cannot do better service to learning, youth, and the nation in general, than by shewing, *That the mathematics of all parts of humane knowledge, for the improvement of the mind, for their subserviency to other arts, and their usefulness to the common-wealth, deserve most to be encouraged.* I know a discourse of this nature will be offensive to some, who, while they are ignorant of mathematics, yet think themselves masters of all valuable learning: but their displeasure must not deter me from delivering an useful truth.

The advantages which accrue to the mind by mathematical studies consist chiefly in these things: 1st. In accustoming it to attention. 2^{dly}. In giving it a habit of close and demonstrative reasoning. 3^{dly}. In freeing it from prejudice, credulity, and superstition.

First, the mathematics make the mind attentive to the objects, which it considers. This they do by entertaining it with a great variety of truths, which are delightful and evident, but not obvious. Truth is the same thing to the understanding, as music to the ear, and beauty to the eye. The pursuit of it does really as much gratify a natural faculty implanted in us by our

(To be continued)

wise creator, as the pleasing of our senses: only in the former case, as the object and faculty are more spiritual, the delight is the more pure, free from the regret, turpitude, lassitude, and intemperance, that commonly attend sensual pleasures. The most part of other sciences consisting only of probable reasonings, the mind has not where to fix; and wanting sufficient principles to pursue its searches upon, gives them over as impossible. Again, as in mathematical investigations truth may be found, so it is not always obvious: this spurs the mind, and makes it diligent and attentive. In *Geometria* (says Quintilian, lib. I. cap. 10.) *partem fatentur esse utilem teneris ætatibus: agitari namque animos, atque acui ingenia, & celeritatem percipiendi venire inde concedunt.* And Plato (in *Repub. lib. VII.*) observes, that the youth, who are furnished with mathematical knowledge, are prompt and quick at all other sciences, *ἡς πάντα τὴν Μαθηματικὴν οἷον αἰνέουσιν.* Therefore he calls it *κατὰ παιδείαν ἴδον.* And indeed youth is generally so much more delighted with mathematical studies, than with the unpleasant tasks that are sometimes imposed upon them, that I have known some reclaimed by them from idleness and neglect of learning, and acquire in time a habit of thinking, diligence, and attention; qualities, which we ought to study by all means to beget in their desultory and roving minds.

To the Publisher of the GENERAL MAGAZINE, &c.

SIR,

I Though the following theorems were investigated (as you are already acquainted with) on a particular occasion, yet they may, perhaps, as the investigation is new, and concise, be acceptable to your mathematical readers; and therefore, if you think proper, may be inserted in the fifth half-Vest of your Magazine.

I am Sir, Yours, &c.

Biddesford,
Jan. 3,
1755.

B. DONN.

A Theorem in Mensuration.

LET t = the top or least diameter, b = the bottom or greatest diameter, $d = b - t$, and h = the height of a conic frustrum; then it's content is = $\frac{tb + \frac{1}{3}dd}{1.27326} \times h$.

Demonstration. Let ACDB represent the conic frustrum; put $m = .7854$, $x = HG$ the distance of any section (parallel to the base) from CD; the rest as above. By similar Δ s as $CL:AL::CK:KE$; $\therefore CL:2AL::CK:$

$2KE$, that is, $b:d::x:\frac{dx}{b} = 2KE$, \therefore

$(t + \frac{dx}{b}) \frac{tb + dx}{b} = EF$; whence the area of the

circle $EF = \frac{mt^2b^2 + 2mtb dx + md^2x^2}{b^2}$, and mul-

tiplying by x , we have $\frac{mt^2b^2x + 2mtb dx x + md^2x^2 x}{b^2}$

= the fluxion of the solid; the fluent of which is

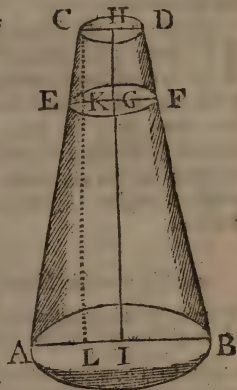
$mt^2x + \frac{mtdxx}{b} + \frac{mddx^2}{3b^2}$, which when x becomes

$= b$, is, by substituting b for x , $= t^2 + td + \frac{1}{3}d^2$

$\times mb$; in which, if we write $b - t$ for its value d in

the second term, the theorem will be, $\frac{tb + \frac{1}{3}dd}{1.27326} \times mb$; but if we choose a

divisor, it will be, $\frac{tb + \frac{1}{3}dd}{1.27326} \times h$ = the content of the conic frustrum.



Q. E. D.

Corollary 1. The theorem $\frac{tb + \frac{1}{3}dd}{1.27326} \times mb$, when $m = 1$, that is, when the frustrum is that of a square pyramid is, $\frac{tb + \frac{1}{3}dd}{1.27326} \times h$.

Coroll. 2. When $d = b$, that is, when $t = 0$; $\frac{tb + \frac{1}{3}dd}{1.27326} \times mb$, becomes $\frac{bbmb}{3}$ = the content of a cone.

Coroll. 3. When $m = 1$, $\frac{bbmb}{3}$ is $= \frac{bbb}{3}$ = the content of a square pyramid.

Coroll. 4. When the solid is a cylinder, then $t = b$, and $d = 0$, and $\therefore \frac{tb + \frac{1}{3}dd}{1.27326} \times mb$, is $= b^2mb$ = the content of a cylinder.

Coroll. 5. When the solid is a square prism, then, $m = 1$, and $\therefore b^2mb$ is $= b^2b$ = the content of a square prism.

Scholium. Whence it appears that we have after a compendious manner deduced from fluxions, theorems, for measuring cones and square pyramids, and their frustrums, also for cylinders and square prisms; and hence may be seen how exactly these theorems, deduced from fluxions agree with those investigated by other principles.

I am, Sir, Your Humble Servant,

B. DOWN.

Mathematical Questions, to be answered.

Quest. 1. *By Arithmeticius.*

Required, a general method for multiplying and dividing decimal fractions, and preserving exactly the decimal parts in the product or quotient, without the method of circulating numbers.

Quest. 2. *By Perpendiculararius.*

IF a point be taken any where within an equilateral triangle, and perpendiculars be let fall from thence to the three sides of the triangle, the sum of these three perpendiculars will be equal to the perpendicular of the whole triangle. Quære the demonstration.

Quest. 3. *By Triangularius.*

Given, the two sides of a plane triangle, and the included angle, viz. $AB = 20$, $BC = 25$, and angle $B = 110^\circ$. To find either of the other parts of the triangle by sides and sines only, without using tangents or secants, by a general theorem?

Quest. 4. *By Astronomicus.*

IN Lat. 5° . No. the 1st June 1755, what will be the sun's amplitude, and his greatest azimuth from the north?

An Elogy on Sir Isaac Newton, translated from the Latin of Dr. Halley.

BEhold the regions of the heav'ns survey'd,
And this fair System in the balance weigh'd!

Behold the law, which (when in ruin hurl'd
God out of Chaos call'd the beauteous world)
Th' almighty fix'd, when all things good he saw!

Behold the chaste, inviolable law!
Before us now new scenes unfolded lie,
And heav'n appears expanded to the eye;
Th' illumin'd mind now sees distinctly clear
What pow'r impels each planetary sphere.
Thron'd in the center glows the king of day,
And rules all nature with unbounded sway;
Thro' the vast void his subject planets run,
Whirl'd in their orbits by the regal sun.

What course the dire tremendous comets steer
We know, nor wonder at their prone career;
Why silver Phœbe, meek-ey'd queen of night,

Now slackens, now precipitates her flight;
Why, scan'd by no astronomers of yore,
She yielded not to calculation's pow'r;
Why the Node's motions retrograde we call,
And why the Apfides progressional.
Hence too we learn, with what proportion'd force

The moon impels, erroneous in her course,
The reflux main: as waves on waves succeed,

On the bleak beach they toss the sea-green weed,

Now bare the dangers of th' engulfing sand,
Now swelling high roll foaming on the strand.

What puzzling school-men sought so long in vain,

See cloud-dispelling Mathefis explain!
O highly blest, to whom kind fate has given
Minds to expatiate in the fields of heaven,
All doubts are clear'd, all errors done away,
And truth breaks on them in a blaze of day.
Awake, ye sons of men, arise! exclude
Far from your breasts all low solicitude;
Learn hence the mind's ætherial pow'rs to trace,

Exalted high above the brutal race.
Ev'n those fam'd chiefs who human life refin'd

By wholesome laws, the fathers of mankind;
Or they who first societies immur'd
In cities, and from violence secur'd;
They who with Ceres' gifts the nations blest,
Or from the grape delicious nectar prest;
They who first taught th' hieroglyphic stile
On smooth * papyrus, native plant of Nile,
(For literary elements renown'd)
And made the eye an arbiter of sound;
All these, tho' men of deathless fame, we find
Have less advanc'd the good of human-kind:
Their schemes were founded on a narrower plan,

Replete with few emoluments to man.
But now, admitted guests in heav'n, we rove
Free and familiar in the realms above;
The wonders hidden deep in earth below,
And nature's laws, before conceal'd, we know.

Lend

* An Egyptian plant, growing in the marshy places near the banks of the Nile, on the leaves of which the antients used to write.

Lend me your aid, ye bright superior pow'rs,
That live embosom'd in Elysian bow'rs,
Lend your sweet voice to warble Newton's
praise,

Who searcht out truth thro' all her mystic
maze,

Newton, by every fav'ring muse inspir'd,
With all Apollo's radiations fir'd;
Newton, that reach'd th' insuperable line,
The nice barrier 'twixt human and divine.

EUGENIO.

To Mr. Handel. On the Loss of Sight.

Homer and Milton might complain
They roll'd their sightless orbs in vain;
Yet both have wing'd a daring flight,
Illumin'd by celestial light.
Then let not old * *Timotheus* yield,
Or, drooping, quit th' advent'rous field;
But let his art and vet'ran fire
Call forth the magic of his lyre:
Or make the pealing organ speak
In sounds that might the dead awake:
Or gently touch the springs of woe,
Teach sighs to heave, or tears to flow:
Then with a more exalted rage
Give raptures to the sacred page,
Our glowing hearts to heaven raise
In choral songs and hymns of praise.

* A musician, in the time of *Philip of Macedon*, banish'd by the *Spartans* for adding a tenth string to the lyre.

On CLARISSA. By a Lady.

I.

Wou'd'st thou, mighty God of love!
With the worthiest soul to move,
Shew me what I now shall ask!
Arduous too, will be the task!

II.

Shew me beauty's finish'd fair!
Sweet in temper, soft in air!
Strongly fixt, on virtue's side:
Free from envy, void of pride.

III.

Bless'd with this transcendent mind,
More to be lov'd, than earth inclin'd!
Happy, only to bestow:
Wretched, at another's woe.

IV.

Scorning riches, that wou'd bring,
Truth, or conscience, any sting:
Wise, yet bumble, justly great!
Patient, and resign'd to fate.

V.

(Tho' accomplish'd to out-shine
Every thought, beneath divine!)

Wander virtue's kingdom round,
All I ask, will ne'er be found.

VI.

Cupid's pow'r can only shew
Excellencies here below:
Wou'd'st thou all these charms obtain,
Make *Clarissa* live again!

A Receipt for a POET. By the same.

FIRST, supposing that nature has furnish'd
a brain,

(Else, all other ingredients are certainly vain)
Look out for a countenance meagre and thin:
Ne'er regard the outside, so we furnish the in.
And because it is needful he should not live
high,

Let his diet be such, as his wit will supply.
Forso't by experience this knowledge we gain,
What fattens the body will make a lean brain.
But I'll venture to promise, with that prudent
care,

'Tis a thousand to one he has nothing to spare.
Let his fancy be lively, his memory strong:
His judgment sufficient to know right from
wrong,

Attended by prudence, to bridle his quill:
Or else it wou'd probably lead him to ill.

Now shou'd he too strictly adhere to the
truth,

His lays must submit to be reckon'd uncouth:
But waving this subject, that meets with small
praise,

Let him see, and seem blind, in these politic days.
For should he breathe free the satirical vein,
Each wound that he gives will redound to his
pain.

No matter how just all his censure may seem;
'Tis a road, that will hardly arrive at esteem:
Like treason, tho' never so highly approv'd,
The traitor, you know, is but seldom below'd.
But where there is merit! in foe, or in friend,
Let him scorn to be silent, and boldly commend!

Advice to CUPID. A SONG. By the same.

I.

Cupid, since thou can'st not see,
Prithee now, be led by me;
To Minerva, strait repair,
And implore her guardian care:
Wou'd'st thou make thy pow'r complete,
Lay thy arrows at her feet.

II.

Throw each foolish shaft away,
Or they'll ever go astray:
Beg her, to new dress thy store,
And with wisdom case 'em o'er:
Tipt with reason, then they'll fly,
Nor can ever go awry.

VALENTINE'S DAY. A New Song.

When blushes dy'd the cheek of morn, & dew-drops glisten'd on the Thorn,

When sky larks tun'd their car--rols sweet, to hail the

God of light and heat: *Philander* from his

For. *Pia.*

downy bed, to fair *Lisetta's* chamber sped; crying awake sweet

love of mine, I'm come to be thy Valentine; away, awake sweet

love of mine, I'm come to be thy Valentine.

Soft love, that balmy sleep denies,
 Had long unveil'd her brilliant eyes,
 Which, that a kiss she might obtain,
 She artfully had clos'd again:

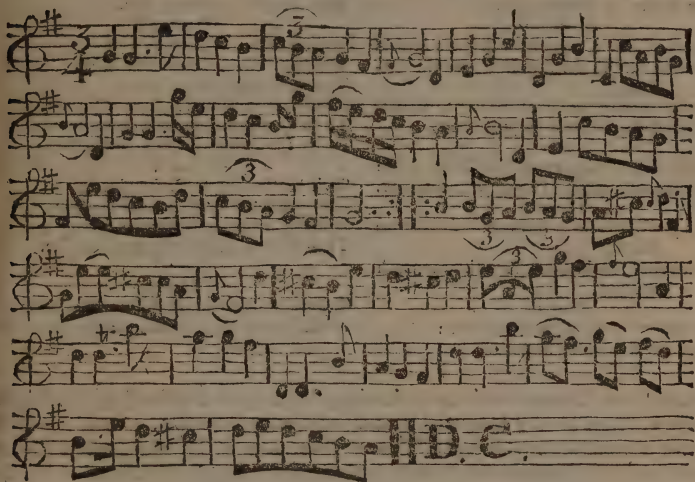
He sunk, thus caught in beauty's trap,
 Like *Phœbus* into *Tbais'* lap,
 And near forgot that his design
 Was but to be her Valentine.

She

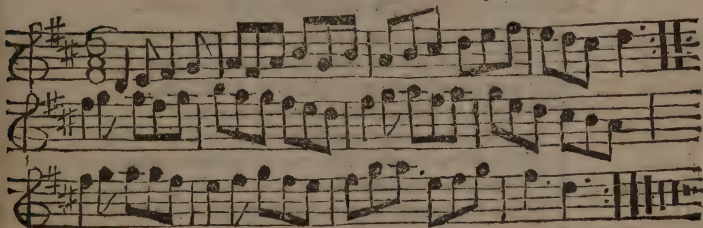
She starting, cry'd, I am undone !
Philander, charming youth ! begone,
 For this time, to your vows sincere,
 Make virtue, not your love, appear :
 No sleep has clos'd these watchful eyes ;
 Forgive the simple fond disguise :
 To generous thoughts your heart incline,
 And be my faithful Valentine.

The brutal passion sudden fled,
 Fair honour govern'd in its stead,
 And both agreed, e'er setting sun,
 To join two virtuous hearts in one :
 Their beauteous offspring soon did prove
 The sweet effects of mutual love :
 And from that hour, to life's decline,
 She blest'd the day of Valentine.

A MINUET.



The WELCH-RABBIT. A Country Dance.



First Co. cast off one co. ⇄ cast up back again ⇄ 1st and 2d men foot it to their partners and turn sides ⇄ foot it sides and turn partners ⇄ 1st man foot it to the 2d Woman and not turn ⇄ 1st woman and 2d man the same ⇄ hands four round 1st co. flip down the middle one co. ⇄ right hands and left ⇄

The following ode written by Colley Cibber, Esq; Poet Laureat, was vocally and instrumentally performed at his Majesty's apartment, adjoining to the council chamber, St. James's on New Year's Day.

Recitative.

AS Rome of old, for Halcyon days,
 Sung Io's to Augustus praise ;

So happier Britons to their King,
 Redeunt Saturnia Regna sing.

Chorus.

Redeunt Saturnia, &c.

Air.

Again behold a younger year,
 Prolongs his elder empire here ;

Still

Still with the same paternal care,
The sun and Cæsar blest the year;
Alike their genial influence yields,
For publick nurture, fertile fields:
While blest'd obedience sings his praise,
Glory the royal grant repays.

Recitative.

What prayer to Heaven could kneel for more,
Than such a godlike use of power?

Chorus

What prayer to heaven, &c.

Recitative.

So reign'd Eliza, when her Britons blest'd
Above the world, the wondering world con-
fess'd.

Then first was known sweet liberty to bloom,
Which now to full maturity is come.

Air.

Now from her smiles enjoy'd is Cæsar great:
Now beams the lustre of his crown complete.

Chorus.

Such a period of glory, since the first Norman
King,

No monarch has known, save the monarch
we sing.

Duetto.

Long the heroine grac'd her throne:
Longer life has Cæsar known.

Her while truth and virtue raise,
Him the patriot King shall praise.

Chorus.

Such a period, &c.

Air.

Happy Britain! Queen of isles!
Mistress of a nation's smiles:
Godlike while thy monarchs shine,
Where's the realm shall rival thine?

Chorus.

Such a period of glory, &c.

Recitative.

Sicilian sisters strike the lyre;
The lay let Cæsar's praise inspire.
To praise undue let art belong,
Truth, truth alone sublimed the song.
The highest praise to heaven we send,
Is, that its laws our lives commend.

Air.

Such be the song to Cæsar given;
The praise of Cæsar, praises heaven:
Where e'er the royal virtues shine,
Their beams display the grace divine.

Chorus.

Be joyful! let the grateful world acclaim,
While wond'ring virtue consecrates his
name.

We have been favoured with the following chronological abstract of the *English* history, from a very honourable and judicious gentleman. Such a subject could not receive much embellishment from poetry; but the poetical stile is certainly best to imprint such observations, especially, on the minds of youth, who are most able to retain these Remarks in their Memory.

The dates of the reigns of the kings of *England*.

WILLIAM I.	1066.	{ THE first year of WILLIAM the first's reign we fix,
WILLIAM II.	1087.	{ In the year one thousand and sixty six.
HENRY I.	1100.	{ In one thousand and eighty-seven his son,
STEPHEN	1135.	{ WILLIAM the second his reign begun.
HENRY II.	1154.	{ One thousand one hundred the date o'the year,
RICHARD I.	1189.	{ When HENRY the first, our king did appear.
JOHN.	1199.	{ Eleven hundred and forty save five is the date,
HENRY III.	1216.	{ When STEPHEN began first to govern the state.
EDWARD I.	1272.	{ One thousand one hundred and fifty four's reckon'd,
EDWARD II.	1307.	{ The date of the reign of King HENRY the second.
		{ After him came to reign King RICHARD the first,
		{ In one thousand one hundred and eighty nine just.
		{ His successor next is his brother king JOHN,
		{ In the Year of our Lord twelve hundred save one.
		{ In one thousand two hundred and sixteen all own,
		{ That HENRY the third came next to the throne.
		{ Next EDWARD his son took the crown as his due,
		{ In the year twelve hundred and seventy two.
		{ In th' year thirteen hundred and seven we read,
		{ That EDWARD the second his son did succeed.

EDWARD

- EDWARD III. { His son the third EDWARD, did just the same thing,
1327. { That is twenty years after he came to be king.
- RICHARD II. { In one thousand three hundred and eighty lack three,
1377. { On the throne next is RICHARD the second, you see.
- HENRY IV. { In one thousand three hundred ninety and nine,
1399. { Came in HENRY the fourth of the Lancaster line.
- HENRY V. { In the year fourteen hundred and one Dozen more,
1412. { The People to HENRY the fifth, their King, swore.
- HENRY VI. { No sooner pass ten years away, but his son,
1422. { King HENRY the sixth, is posses of the Throne.
- EDWARD IV. { Fourteen hundred and sixty the York Line's restor'd,
1460. { In the person of EDWARD the fourth their liege-lord.
- EDWARD V. { Three and twenty years after scarce is seen on the throne,
1483. { Young EDWARD the fifth, before his life's gone.
- RICHARD III. { For that year his base uncle, RICHARD the third,
1483. { Kills him, seizes the crown, the sceptre and sword.
- HENRY VII. { But in two years time after, all things were soon righted,
1485. { And the white and red roses in HENRY united.
- HENRY VIII. { After him reigned HENRY the eighth his son,
1509. { In the year fifteen hundred and ten wanting one.
- EDWARD VI. { One thousand five hundred and fifty save four,
1546. { EDWARD the sixth the diadem wore.
- MARY. { In the year fifteen hundred fifty and three,
1553. { Queen MARY began then to reign all agree,
- ELIZABETH. { And in fifteen hundred fifty and eight,
1558. { Her sister ELIZABETH felt the crown's weight.
- JAMES I. { In sixteen hundred and two (the queen dead,)
1602. { JAMES king of Scotland, came to reign in her stead.
- CHARLES I. { One Thousand six hundred twenty and five,
1625. { His son CHARLES the first, to the crown did arrive.
- CHARLES I. { But in sixteen hundred forty and eight,
1648. { Which ought ever, or never to be out of date,
1648. { He was vanquish'd by OLIVER, and forc'd to submit
1648. { To the most cruel terms that his conqu'rors thought fit.
- CHARLES II. { From that time the line of the STUARTS goes on,
1648. { In the person of CHARLES the second, his son.
- CHARLES II. { But sixty's the year when he was restor'd,
1660. { To his crown with almost universal accord.
- JAMES II. { In the year eighty-five accedes to the throne,
1685. { JAMES the second, his brother a bigot well known.
- JAMES II. { He soon treads down liberty, laws, constitution,
1688. { And so paves the way for the great revolution.
- WM & MARY. { In the year eighty-nine, together are seen,
1689. { On the throne king WILLIAM, and MARY his queen.
- ANNE. { They dy'd without issue, so ANNE's Reign's begun,
1701. { In the year one thousand seven hundred and one.
- ANNE. { The nation she governed four months and twelve years;
1714. { After her a new race of heroes appears.
- GEORGE I. { One thousand seven hundred and fourteen's the date,
1714. { When GEORGE, as his right, claims the rule of the state.

GEORGE II.
1727.

{ His son GEORGE the second in the year twenty-seven,
{ Succeeded his father translated to heaven.

*Long flourish Britain's crown in Brunswick's line,
As long as sun, and moon, and stars shall shine!
May laws, religion, liberty and peace,
Last with great Brunswick's sway, 'till Time itself shall cease!*

T. N.

*We have been favour'd with several other Pieces from our Correspondents, which,
for want of Room, we must postpone to another Opportunity.*

A CHRONOLOGICAL MEMOIR of Occurrences,

For January 1755.

The political State of EUROPE for this Month: With a proper Introduction.

EUROPE has enjoyed the Blessings attendant on a general peace, since the conclusion of the treaty of Aix la Chapelle in 1748. The wars terminated by that treaty, were supported by a great effusion of blood, and expence of treasure. The war between Great Britain and Spain continued nine years: that kindled in Germany, by the artifices of France, in setting the houses of Brandenburg and Bavaria to debilitate the house of Austria, continued eight years; and the war between Great Britain and France, in which most of the other European powers were involved, continued four years. When the peace was concluded, the balance of power was endeavoured to be secured, by the different parties, who became divided into two grand coalitions: the empress queen of Hungary, Russia, Great Britain, the United Provinces, and Sardinia, composing the one: France, Spain, the two Sicilies, Prussia, and Sweden, forming the other. From that time, a reciprocal jealousy in the cabinet succeeded a general enmity in the field: some of the com-

mercial powers have been employed in restoring trade, others in creating new branches of commerce: while the military states have been improving their armies, and making themselves ready to check the first daring power who should violate the general tranquillity, which seems now to be fatally disturbed by the aspiring views and insolent conduct of France, still directed against Great Britain, the natural enemy of every state who wantonly aims at such an extension of power, as must form the foundation of universal monarchy, and render the state of men as contemptible as that of beasts, by expelling freedom from her residence, and binding her children in the abject bonds of slavery.

These general remarks are necessary to the introduction of the present political system of Europe; which seems now to be shaken both towards the east and west: but if peace cannot be justly supported, the offended powers may have ability enough to punish the violators of treaties with the scourge of war.

Russia.

Russia. The Russian empire, like its own polar star, illumines the northern hemisphere. Peter the Great laid the foundation of its present magnificence; Munich, once the glorious general, and now the miserable exile, brought the plan of the Czar to perfection; and, under the auspices of the present Czarina Elizabeth, the Russian power not only commands the balance of the north, but greatly influences affairs in the southern dominions of Europe. Count Bestucheff, who presides in the Russian administration, is an able and prudent minister: he has prevented any rupture with Sweden; maintained a good understanding with Turkey; and greatly augmented the felicity of Russia, whose inhabitants are pleased with the virtues of their grand prince, and the increase of his august family.

Sweden. The king of Sweden, being uncle to the grand prince of Russia, has endeavoured to conciliate the differences which have subsisted between the two states since the treaty of Abo, in 1743: but, of late, nothing material has happened in Sweden.

Denmark. His Danish majesty, ever since his accession to the throne in 1746, has always been attentive to the felicity of his subjects; and has sent orders to his minister at Ratisbon, to guaranty the measures taken by the landgrave of Hesse-cassel, for maintaining the Protestant religion in that country after his death.

Poland. His Polish majesty has left Warsaw, to visit his electoral dominions; leaving Poland in more tranquillity than usual; for the only public dispute of any consequence in that kingdom relates to the possessors of the estates of the ordination of Ostrog, by virtue of the will of the late prince Sangushio: but the king has appointed a royal commission to be held at Dubno, to examine into the nature of those possessions.

Germany. The political affairs of Germany, particularly of the court of Vienna, continue in a very tranquil situation; but the ecclesiastical system has received a violent blow at the court of Hesse-cassel, where the hereditary prince has renounced the Protestant religion, and embraced the Romish faith: however, the states of that country are concerting effectual measures for inviolably maintaining their religion, laws, and constitutions; particularly, by taking care, that the children of prince Frederick, by the princess Mary of Great Britain, shall be educated in the Protestant faith; besides, that prince has assured his royal consort, that, honouring her virtues, she might rest assured of his strict attention, firmly to observe, in respect to her, and her children, whatever was stipulated relating to the article of religion.

Turky. The Turks have remained in peace on the side of Europe since the treaty of Belgrade in 1739; which has been entirely owing to the pacific disposition of Mahomet their emperor, who ascended the Ottoman throne, on the 5th of October 1730, but, unhappily for Europe, this amicable monarch died on the 13th of last month, by a sudden fit of the asthma, and is succeeded by his brother Osman III, who has been invested with the imperial dignity without the usual commotions on such occasions. The new Sultan has continued all the officers of state in their several employments; and if France should now be as assiduous at the Ottoman ports as she was in the year 1746, perhaps she might not find so much difficulty as she did then, in stirring up the Turks to invade the Austrian dominions.

Italy. The Pope, in a grand consistory, has accepted of the resignation of the cardinal's cap, by the Infant Don Lewis of Spain: and the society for the propagation of the faith have received advices from China, that

the persecution of the christians in that great empire was entirely ceased. Nothing material has happened at the other courts of Italy; except that a stop is put to the treaty of commerce negotiating between the courts of Naples and London, on account of the difficulty concerning the nature of the goods which are deemed to be contraband in Naples; where mount Vesuvius has lately renewed its eruptions; the lavy, or burning matter, having extended five miles towards the south, on the side of San Angelo; and the valley of Scafara.

Portugal. The court of Lisbon, having partly rectified the matters complained of by the merchants of the British factory, seems to apply itself to its old pursuit of pacific measures.

Spain. The court of Madrid is intent upon the recovery of its marine from the low state into which it was sunk; and the king has lately made several military promotions. The French ambassador has had several conferences with the Spanish ministers concerning the armaments that the court of Great Britain is preparing for America; in which he endeavoured to represent them in such a light as might give umbrage to the Spanish court: but as the marquis de la Ensenada, the tool of France, is out of the administration; and as general Wall, a well-known friend to England, presides in the Spanish council, it is to be hoped that the French artifices will no longer prevail at Madrid. However, the Spaniards have entirely dispossessed the English logwood-cutters of their settlement in the bay of Honduras; where such depredations have more than once occasioned a rupture between the two crowns.

France. The parliament of Paris, having asserted the true spirit of a Roman senate, have at last triumphed over their enemies the clergy; the archbishop of Paris being sent into

exile, while the parliament has been honourably recalled by the king, and has happily renewed its functions to the great joy of the people. The southern provinces have been greatly infested by a banditti of smugglers, headed by one Mandrin, a brave and experienced officer, who has been successful in several engagements against the royal troops. The king has appointed M. Moreau de Sechellas, comptroller general of the Finances, to be one of the ministers of state; and the French ministry seem to be taking every step towards an open quarrel with Great Britain, who cannot tamely behold the rapacious schemes of France in Asia and America. It is reported, that France has now 97 ships of the line, and 50 frigates, besides galleys; with which she is ready to put her former projects in execution. Indeed, if the French establish themselves on the back of the British colonies in north America; if they are as successful in India, during this interval of peace, as they were during the late war; if they should render themselves more formidable on the coast of Africa; and should rekindle the flames of war in Europe; she may have strength enough to be troublesome for a time to Great Britain: but the British navy has been hitherto invincible; it ruined the maritime force of Lewis XIV, and has once destroyed that of Lewis XV, and it is not to be feared, but the resentment of Britain can again sufficiently punish the insolence of France.

The United Provinces. The states general have had long conferences with prince Lewis of Brunswick, the field-marshal of the republic; and it is supposed, that a negotiation is upon the tapis for foreign troops; the military spirit and commercial interest of this republic seem to be dwindling into contempt and inability, like her sisters of Venice and Genoa.

L O N D O N.

1. **T**HE Hon. Commadore Kephle was elected member for Chichester.

2. Dr. Andrew Didier elected physician to the Middlesex hospital.

3. Joseph Gill and William Buck, two highwaymen, were taken, after a very obstinate resistance.

— Edward Herbert, Esq; elected Member for Shropshire.

4. Michael Flemming, servant to the Hon. Mr. King, of Albemarle-street, was sent by his master to the bank to get a note for 500 l. changed for small notes, which, after effecting, he went off with, but was taken at Well's the 7th.

— The bodies of four children, all putrified, except the body of a boy about a month old, supposed to be lately put there, were found under an arch of the stables at the bottom of Bolton-row, near the duke of Devonshire's gardens, by some workmen who were cleansing a shore: the skulls of the children seemed all to be broke with a hammer.

6. Being twelfth day, it was observed at court as a high festival.

— The Rt. Hon. the marquis of Winchester, without opposition, was elected knight of the shire for the county of Southampton.

Henry Drax, Esq; and capt. Augustus Pitt, of the foot-guards, were elected members for Wareham.

The following melancholy accident happened at a house in St. Giles's: a child of two or three years old going too near the chimney, in the absence of his mother, the fire caught his cloaths, and set them in a blaze. The people on the lower floor, alarm'd

by unusual shrieks and cries of the child, ran to its assistance, and found its face, arms, and one of its hips burnt in a most miserable manner.

7. This day the House of Commons met pursuant to their late adjournment.

— The duke de Mirepoix, the French ambassador, arrived at his house in Grosvenor-square from France.

— The Rt. Hon. the lord Montfort was unanimously chosen high-steward of Cambridge, in the room of the late lord Montfort, his father, deceased.

A gentleman in his coach going near Brentford, and passing briskly a-breast of a waggon, the waggon-horses set off as fast as they could, whereby the driver was thrown under one of the wheels, which went in a line from the hinder part of his body directly over his head. A gentleman passing by at the same time took up the poor man, expecting he was killed, but it happened he received no other damage than having his lip and chin pretty much cut, which it is thought he will soon get over.

9. The House of Peers met, and adjourn'd to Monday next.

The Rt. Rev. the Lord Bishop of Chichester appointed to preach before the Rt. Hon. the House of Peers, the 30th instant.

22. The committee of city lands sold the place of sword-bearer of this city to Mr. Henry Wentworth, surgeon, in Friday-street, for 550 l.

23. There was a hot press for seamen.

25. A proclamation was published in the Gazette for seamen, and 30 s. per month for volunteers, 20 s. bounty money.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane Theatre.

- Jan. 1. *Barbarossa*. The Ninth Time.
2. *Barbarossa*.
3. *Barbarossa*.
4. *Drummer—Proteus, or Harlequin in China*.

Covent-Garden Theatre.

- The Rehearsal*.
The Nonjuror.—*Harlequin Sorcerer*.
A Burletta.
The Twin Rivals.

6. Twelfth

Drury-Lane Theatre.

6. *Twelfth Night*.—*Proteus*.
7. *The Inconstant*.—*Proteus*.
8. *Phædra and Hippolitus*.—*Proteus*.
9. *Much ado about nothing*.—*Proteus*.
10. *Merry Wives of Windsor*.—*Proteus*.
11. *Constant Lovers*.—*Proteus*.
13. *Drummer*.—*Proteus*.
14. *Suspicious Husband*.—*Proteus*.
15. *Love for love*.—*Proteus*.
16. *Orphan*.—*Proteus*.
17. *Provoked Wife*.—*Proteus*.
18. *Careless Husband*.—*Proteus*.
20. *Stratagem*.—*Proteus*.
21. *The Pop's Fortune*.—*Proteus*.
22. *The Man of Mode*.—*Proteus*.

BIRTHS.

Jan. 3. The lady of William Southwell, Esq; delivered of a son, which died soon after its birth.

5. The lady of Edward Blount, Esq; safely delivered of a son and heir.

8. The lady of Sir James Dunbar, Bart. safely delivered of a son and heir.

12. The lady of James Digges Latouche, Esq; safely delivered of a son.

17. The lady of the Right Hon. Lord Duncannon safely delivered of a daughter.

The lady of Thomas Foley, Esq; Member for Droitwich in Worcester-shire, safely delivered of a son.

24. The lady of Sir Thomas Parkyns, Bt. of Bunny-Park, in the county of Nottingham, delivered of a son and heir.

MARRIAGES.

Jan. 2. Mr. John Berwick, an eminent haberdasher in Friday-street, to Miss Betsy Lodge, (daughter of Mr. John Lodge, an eminent packer in Little St. Helen's.)

4. Mr. William Marcellus, an eminent painter, to Miss Anna Amelia Moyse.

7. Mr. Hughs, an eminent fellmonger, to Miss Sally Smith, with a fortune of 200 l. per annum.

11. The Rt. Hon. the Earl of Dartmouth, to Miss Francis Katherine Gounter Nicholl, only daughter and sole heiress of Sir Charles Gounter Nicholl, Knight of the Bath, deceased, descended in the direct male line from Sir Hugh Gounter, Knight, who was standard-bearer to K. William the Conqueror, and was seated at Rackton, in the county of Sussex, which continued to be the chief seat of his descendants, till the death of Sir Charles Gounter (who took the name of Nicholl by act of parliament): and upon this marriage, the possession of that estate and many other real estates, and a vast fortune in money, was transferred to a young nobleman, whose personal qualifications (as

Covent-Garden Theatre.

- Beggar's Opera*.—*Harlequin Sorcerer*.
Careless Husband.—*Mock Doctor*.
The Suspicious Husband.—*Scapin*.
The Way of the World.—*Harlequin Sorcerer*.
Oedipus.—*Scapin*.
Oedipus.—*Scapin*.
Provoked Husband.—*Harlequin Sorcerer*.
Revenge.—*Knights*, for benefit of public charity.
Oedipus.—*Scapin*.
Hamlet.—*Scapin*.
Careless Husband.—*Harlequin Sorcerer*.
Double Dealer.—*Contrivances*.
Beggar's Opera.—*Harlequin Sorcerer*.
Funeral.—*Scapin*.
Constant Couple.—*Harlequin Skeleton*.

also the lady's) are so well known, that they need not be mentioned upon this occasion.

13. The Rev. Mr. Foyle, Rector of Kington, Hants, to Miss Hayter, only daughter of Thomas Hayter, Esq; of Salisbury, a young lady with 10000 l. fortune.

15. Mr. William Burton, timber merchant, to Mrs. Winnell.

DEATHS.

Jan. 1. Lord Montford. Suddenly.

Rev. Mr. Wilson, lecturer of St. John's Southwark.

2. Sir James Lowther, Bart. esteemed the richest commoner in England.

5. At Cambridge, Mr. Wendy, alderman of that town.

6. In the 83d year of his age, Richard Carter, Esq; his Majesty Chief Justice for South Wales.

9. The Right Hon. Augustus Berkeley, Earl of Berkeley, Viscount Dursley, and Lord Berkeley of Berkeley-castle in Gloucestershire, Ranger of Dean Forest, Lord Lieutenant and Custos Rotulorum of Gloucestershire, and Knight of the Thistle. His lordship married, May 7, 1744, Elizabeth, daughter to Henry Drax, Esq; member of parliament for Wareham in Dorsetshire, by whom he had Lord Dursley, now Earl of Berkeley, who is in the 10th year of his age, and several other children.

10. Mr. Thomas Chitty, only son of Thomas Chitty, Esq; alderman of Tower Ward.

11. The Hon. Mrs. Townshend, lady of the late colonel Townshend, and daughter of the late Lord William Powlett.

Mrs. Read (who died a few days since at her house in Arlington-street) has left 500 l. to distressed widow gentlemen, and 100 l. to poor clergymen's widows.

13, Mr. Monk, many years one of the grooms of the chambers to his Majesty.

14. In the 76th year of his age, Mr. Thomas Brewer, stationer, in Ludgate-street.

B ——— K R ——— T S.

Richard Falkner, of Blackburne, merchant.
John Myers, of Preston, merchant.
John Barford, of Ipsley, tanner.
John Gatward, of Cambridge, coal-merch.
William Hopkins, of St. James's Westminster, carpenter.
Walter Colquhoun, of Norwich, linnen-drap.
Andrew Atchison, of Soho, linnen-drapeer.
Alexander Smith, of Blossom's Inn, merch.
William Clarke, of Ludlow, mercer.
Solomon Jacobs, of Norwich, dealer & chap.
Joshua and Richard Harle, of St. Buttolph without Aldgate, grocers.
Thomas Warner, of Huntingdon, merchant.
John Mackintosh, of London, surgeon and apothecary.
James Nicholson, jun. of North Bailey, Durham, Innholder.
Charles Macklin, of Cov. Garden, vintner and coffeeman.
Daniel Briffanden, of Canterbury, grocer.
Thomas Emerson, of Barnard-castle, Durham, butcher.

John Gatacre, of St. George Bloomsbury, ironmonger.

Bill of Mortality from Dec. 31 to Jan. 21.

Buried		Christened			
Males 694	} 1412	Males 464	} 885		
Females 718		Females 421			
Under 2 years old 435					
Between 2 and 5 119		Buried,			
5 and 10 — 35		Within the walls 113			
10 and 20 — 40		Without the walls 335			
20 and 30 — 120		<i>Mid. and Surry</i> 661			
30 and 40 — 153		<i>City & Sub. West.</i> 303			
40 and 50 — 162					
50 and 60 — 116		1412			
60 and 70 — 119					
70 and 80 — 71		<i>Weekly Jan.</i> 7. 441			
80 and 90 — 41		14. 505			
90 and 100 — 1		21. 466			
100 and 109 — 0					
1412		1412			

BOOKS, published in January, 1755.

BATT's sermon, at the election of a mayor and Sheriffs at Bristol. 6d.
Bally's justice of the Supreme Being. 1s. (Dodd.)
Barthelemy's (Abbé) reflections on the alphabet and language of Palmyra. Translated from the French. 6d.
Coriolanus, or the Roman Matron. A tragedy. Taken partly from Shakespear, and partly from Thomson. 8vo. 1s. 6d.
Courtier and Patriot. An epistle to his grace the duke of Newcastle. Fol. 6d.
Carew's historical Right of Elections. Fol. (Nourse.)
The Card, 2 Vols. 12mo Calf. (Newberry.) 6s.
Essay on the liberty of the press, chiefly as it respects personal slander. 8vo. (Raymond.) 1s.
Extract of the Bon Mots, or Witty Sayings of little brother Andrew, against the Jesuits. (Baldwin) 6d.
Jones's sermon, at St. Botolph, Bishopsgate, Nov. 24. 1754. 6d.
Folly predominant, or the Town taken in; with the palpable deception of the Orators: with their effigies. Fol. (Carpenter) 1s.
Free thoughts and bold truths, on the present posture of affairs. (Dodsey.) 6d.
Free and impartial remarks on the real importance of the whale fishery. In a letter to a member of parliament. By a merchant. (Cooper.) 1s.
Griffin's (Rev. Mr.) Scripture account of a future state considered. (Swan,) 1s.

Great Britain's poverty and distress, exemplified by the East India Monopoly, with some hints towards a remedy. (G. Bible.) 6d.

Grand Question, debated after the dialogical manner of Lucian, for abolishing the public debt. (Baldwin.) 1s.

Green's Dissertation on enthusiasm. (Oliwer.) 2s. 6d.

Huddersford's (Rev. Dr.) proper reply to a pamphlet entitled, a defence of the rector, and fellows of Exeter College. (Rivington.) 6d.

Hay's translation of select epigrams of Martial. Latin and English. 12mo. Calf 3s. English only. 8vo. Blue pa. 2s.

Historical dissertation on the books of the New Testament; or an enquiry into their authority and particular character. Compos'd from original authors. 5s.

Queries humbly offered to Count Zinzendorf. 6d.

Immortality; or the consolation of human life. A monody. (Dodsey.) 1s.

Ireland in tears; or a letter to Sir Andrew's eldest daughter's youngest son. By Major Sawney M'Cleaver, an officer on the Irish establishment. 1s.

Letter from a member of the university of Oxford, to a gentleman in the country: containing a particular account of a watch-plot lately discovered there. (Mears.) 4d.

Liberty regained; or Life of W. S. Esq; a Poem. Inscribed to the Earl of Chesterfield. (Woodgate, &c.) 6d.

EACH DAY's Price of STOCKS, in JANUARY 1755.

Books Shut, is signified thus, —

[illegible]

Miscellaneous Correspondence,

For FEBRUARY, 1755.

The ESSAY on the *Usefulness* of MATHEMATICAL LEARNING, continued
from Page 2 of our last.

The second advantage which the mind reaps from *mathematical* knowledge, is a habit of *clear, demonstrative, and methodical* reasoning. We are contrived by nature to learn by imitation more than by precept: and I believe, in that respect, reasoning is much like other inferior arts (as *dancing, singing, &c.*) acquired by practice. By accustoming ourselves to reason closely about quantity, we acquire a habit of doing so in other things. It is surprising to see what superficial, inconsequential reasonings satisfy the most part of mankind. A piece of wit, a jest, a simile, or a quotation of an author, passes for a mighty argument: with such things as these are the most part of authors stuffed: and from these weighty premises they infer their conclusions. This weakness and effeminacy of mankind, in being persuaded where they are delighted, have made them the sport of orators, poets, and men of wit. Those *lumina orationis* are indeed very good diversion for the fancy, but are not the proper business of the understanding; and where a man pretends to write on abstract subjects in a scientific method, he ought not to debauch in them. Logical precepts are more useful; nay, they are absolutely necessary for a rule of formal arguing in public disputations, and confounding an obstinate and perverse adversary, and exposing him to the audience, or readers. But in the search of truth, an imitation of

the method of the *geometers* will carry a man further than all the *dialectical* rules. Their *analysis* is the proper model we ought to form ourselves upon, and imitate in the regular disposition and gradual progress of our enquiries; and even he, who is ignorant of the nature of *mathematical analysis*, uses a method somewhat analogous to it. The *composition* of the *geometers*, or their method of demonstrating truths already found out, viz. by *definitions of words agreed upon, by self-evident truths, and propositions that have been already demonstrated*, is practicable in other subjects, though not to the same perfection, the natural want of evidence in the things themselves not allowing it; but it is imitable to a considerable degree. I dare appeal to some writings of our own age and nation, the authors of which have been mathematically inclined. I shall add no more on this head, but that one, who is accustomed to the methodical systems of truths, which the *geometers* have reared up in the several branches of those *sciences* which they have cultivated, will hardly bear with the confusion and disorder of other *sciences*, but endeavour as far as he can to reform them.

Thirdly, *mathematical* knowledge adds a manly vigour to the mind, frees it from *prejudice, credulity, and superstition*. This it does two ways, 1st, by accustoming us to examine, and not to take things upon trust. 2^{dly}, By giving

giving us a clear and extensive knowledge of the system of the world; which, as it creates in us the most profound reverence of the almighty and wise creator; so it frees us from the mean and narrow thoughts which ignorance and superstition are apt to beget. How great an enemy *mathematics* are to superstition appears from this, that in those countries, where *Romish Priests* exercise their barbarous tyranny over the minds of men, *astronomers*, who are fully persuaded of the motion of the earth, dare not speak out: but though the *inquisition* may extort a recantation, the *Pope* and a general council too will not find themselves able to persuade to the contrary opinion. Perhaps this may have given occasion to a calumnious suggestion, as if *mathematics* were an enemy to religion, which is a scandal thrown both on the one and the other; for truth can never be an enemy to true religion, which appears always to the best advantage, when it is most examined.

———*Si propius stes,
Te capiet magis.*———

On the contrary, the *mathematics* are friends to religion; inasmuch as they charm the passions, restrain the impetuosity of imagination, and purge the mind from error and prejudice. Vice is error, confusion, and false reasoning;

and all truth is more or less opposite to it. Besides *mathematical* studies may serve for a pleasant entertainment for those hours, which young men are apt to throw away upon their Vices; the delightfulness of them being such, as to make solitude not only easy, but desirable.

What I have said may serve to recommend *mathematics* for acquiring a vigorous constitution of mind; for which purpose they are as useful, as exercise is for procuring health and strength to the body. I proceed now to shew their vast extent and usefulness in other parts of knowledge. And here it might suffice to tell you, that *mathematics* is the science of quantity, or the art of reasoning about things that are capable of *more* and *less*, and that the most part of the objects of our knowledge are such: as matter, space, number, time, motion, gravity, &c. We have but imperfect ideas of things without quantity, and as imperfect a one of quantity itself without the help of *mathematics*. All the visible works of God almighty are made in number, weight, and measure; therefore to consider them, we ought to understand *arithmetic*, *geometry*, and *statics*: and the greater advances we make in those arts, the more capable we are of considering such things, as are the ordinary objects of our Conceptions. But this will farther appear from particulars.

(To be continued)

We make no doubt but the public will think themselves highly obliged by the following accurate, and most useful observations; since we cannot but be sensible they are the best means which nature affords for discovering the longitude of places, and consequently are of the last importance for perfecting the art of navigation. Such observations are also of great use in settling the theorems of the motions of those secondary planets.

ASTRONOMICAL OBSERVATIONS in the Year 1754, at Newport, Salop.

H.		
Jan. 1st. at 8	08 03	Jupiter's 1st Satellite immersed.
Same day at 8	32 50	The 3d Satellite immersed.
Jan. 5, at 9	14 51	A star of the 3d magnitude near <i>Aldebaran</i> immersed behind the <i>Moon's</i> S. E. limb, at 10 ^h 06' 51" it emerged S. W. Same

H. ' "

- Same day at 19 35 50 A star of the 4th magnitude immersed behind the E. N. E. limb.
 at 11 44 21 it emerged full west.
- Feb. 6th, at 07 52 00 Jupiter's 3d Satellite emerged, not out of the shadow, but from behind the body, at which time they seemed to touch each other.
- Same day at 10 16 00 The E. N. E. limb of the *Moon* occulted a star of the 3d magnitude, it being cloudy for a few minutes; the emerision could not be nicely determined, but was nearly at 10^h 52'. The star is marked A in *Senex's Zodiack*, and is to be found in one of the small fouthern *claws* of the *Crab*.
- Feb. 9th, at 08 46 00 Jupiter's 1st Satellite emerged from *behind his body*.
- Feb. 17th, at 09 00 00 Jupiter's 3d and 4th Satellite appeared very near each other, and
 at 09 20 00 so close as to appear but as one Satellite.
- Mar. 21st, at 07 57 30 Jupiter's 3d Satellite emerged from his shadow.
- April 9th, at 07 27 00 Jupiter's 4th immersed, clouds intervening the emerision was invifible.
- Apr. 19th, at 09 36 13 Jupiter's 1st Satellite emerged.
- May 2d, at 11 17 04 The N. E. limb of the *Moon* occulted a star of the 4th, marked ξ in the north *claw* of the *Lion*; the emerision was at 12^h 15' full west.
- May 3d, Between the times of 8^h 00' and 8^h 02' happened an emerision of the 3d Satellite, but clouds prevented an exact observation.
- May 10th, at 12 05 00 Jupiter's 3d Satellite emerged.
- Same day at 13 58 00 The star marked ρ in 16^d of $\vee 3$ was occulted by the *Moon*, the emerision was at 15^h 20', the star passed central.
- May 19th, at 11 35 30 Jupiter's 2d Satellite emerged; and at 11^h 49' 15" the first Satellite emerged.
- July 28th, at 10 47 15 A star of the 4th magnitude marked χ between the *claws* of the *Scorpion*, was occulted by the *Moon's* N. E. limb. The *Moon* being very near the horizon, the emerision could not be seen.
- Aug. 31st, at 10 23 56 A star of the 4th magnitude marked θ in the fide of \approx immersed behind the *Moon's* north limb, and emerged at 10^h 54' N. W.
- Nov. 21st, at 08 00 00 A star of the 5th magnitude marked ρ in the fide of \approx immersed behind the *Moon's* eastern limb, and emerged at 9^h 14' 30" N. W.
- Nov. 24th, at 18 29 45 Jupiter's 1st Satellite immersed.
- Dec. 16th, at 13 15 30 The 4th Satellite began to immerge, and at 16' 30" it was quite hid.

J. P. H.

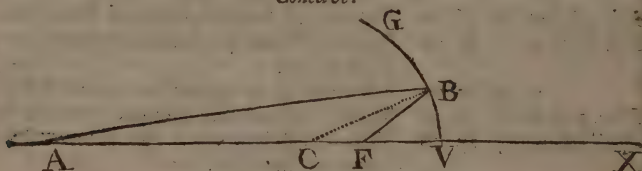
As the EPHEMERON FLY has always been looked upon as the most extraordinary production of nature, in regard to its singular short period of life, we shall entertain our readers with a short history of this most curious animal in our next number;

and here only present them with a microscopic view of the nympha state of it; most accurate and exact to the life, since every part of it was adjusted and measured with a Micrometer. This we hope will be the more acceptable, as we are well satisfied no true delineation of it is any where else to be found. And the public may be assured, that whatever they find in our plates of this kind is a just representation of nature, viewed by our own eye, and drawn by our own hand.

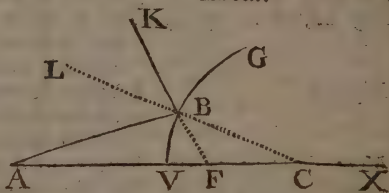
B. M.

As several of our readers may desire us to illustrate the important and curious discovery of the Harmonical Reflection of Light, (mentioned in page 8, of THEOLOGY) we give here, agreeable to our promise, the following mathematical demonstration.

Concave.



Convex.



LET VG be the reflecting surface of the mirror, convex or concave; AX its axis, V the vertex, and C the center; also let A be the radiant point, or place of the object, AB a ray of light incident on the mirror in the point B, and BF the reflected ray meeting the axis in the point F, which is the focus, or place of the image. Put $CB = r$, $AV = d$, and $FV = f$; then we shall hereafter shew, that $\frac{dr}{2d+r} = f$ in the convex

speculum, and $\frac{-dr}{2d-r} = f$, in the concave one; whence we have the analogy

$d:d+r::f:r-f$, that is, $AV:AC::VF:FC$, in the convex; and (when $2d$ is greater than r) we have $d:d-r::f:r-f$, or $AV:AC::VF:FC$, in the concave mirror: whence the line, or axis, is divided harmonically in the points A, V, F, C.

B. M.

S I R,

I have sent answers to the second and third Questions in Mr. Martin's Magazine. I wish success to the Undertaking, and am Yours, &c.

ROB. HALL.

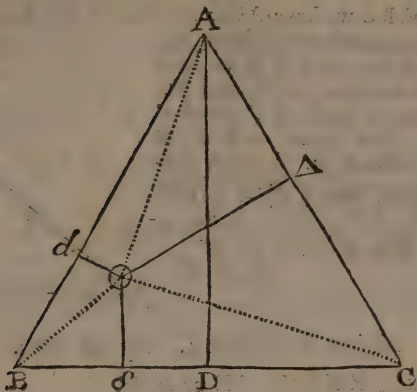
Question 2.

DRAW lines from the point assumed to the angles of the triangle, which will divide it into three triangles; whose perpendiculars call x , y , and z , and the perpendicular of the equilateral triangle u , and its side $2a$. Then, by the common theorem for

measuring triangles, ax , ay , and az , will be the areas of the three triangles, and au the area of the whole triangle. But the whole is equal to all its parts: therefore $au = ax + ay + az$, and divided by a , $u = x + y + z$, W.W.D.

A

A Demonstration of the 2d Question.



Draw the equilateral triangle ABC, and from the $\angle A$ let fall the perpendicular AD; then let any point O be assumed within the triangle ABC, from which let fall the perpendicular $Od, O\delta, O\Delta$, and draw OA, OB, OC. Then the triangles ABC, OAB, OBC, OCA, having equal bases, will be as their attitudes, *i.e.* $ABC : AD :: OAB : Od :: OBC : O\delta :: OCA : O\Delta$ (and therefore) $:: OAB + OBC + OCA : Od + O\delta + O\Delta$, but $OAB + OBC + OCA = ABC$, and consequently $Od + O\delta + O\Delta = AD$. *Q. E. D.*

Solution of the 3d Question, By R. R.

Bisect the vertical angles and put $AB = a, BC = b$, base $= x$, bisecting line $= y$, sine of $\frac{1}{2}$ vertical angle $= 1$ supplement of the given vertical angle $= C$. Then (*Euc.* 3. 6.) $a + b : x :: a : \frac{ax}{a+b} = AD$, after the same manner $\frac{bx}{a+b} = DC$. Then $\frac{ax}{a+b} : f :: y : \frac{fya + fyb}{ax} = \text{fine angle } A$. And $\frac{fya + fyb}{ax} : b :: c : x \therefore bc = \frac{fya + fyb}{a}$ And $y = \frac{abc}{fa + fb}$ is known. Again

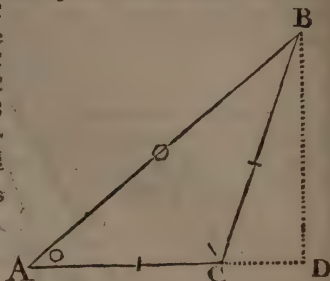
by *Lemma*, p. 238. *Mr. Simpson's algebra*, $y^2 = ab - \frac{abx^2}{a+b}$, whence $x^2 =$

$\frac{ab - y^2 \times a + b^2}{ab}$ which gives these two Theorems. 1. As the Sum of the

sides multiplied by the sine of half the vertical angle, is to the product of the sides $::$ so is the sine of the supplement of the vertical angle : to the bisecting line. 2. As the product of the sides : is to the square of the sum of the sides $::$ so is that product minus the square of the bisecting line : to the square of the base, whose square root $= 37$. *Q. E. I.*

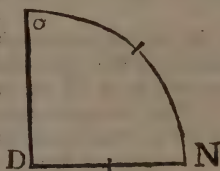
Solution to Question 3. By S. SMITH of Darlington.

IN the triangle ABC we have $AC = 20$, $BC = 25$ and $ACB = 110^\circ$. From B let fall the perpendicular BD on AC produced, then in the $\triangle CBD$ we have $BCD = 70^\circ =$ the suppl. ACB , and $BC = 25$. Therefore, as $\text{Rad.} : BC :: 1. BC : D : BD = 23.49$. And again, as $\text{Rad.} : BC :: 1. CBD :: CD = 8.55$. Now $AC + CD = AD = 28.55$. And $\sqrt{AD^2 + BD^2}^{\frac{1}{2}} = AB$ (per *Euc.* 47. 1) $= 36.97$. Lastly, as $AB : 1. ACB :: BC : BAC = 59^\circ 27'$.
Q. E. F.

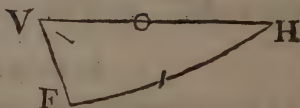


Answer to Question 4. By the same.

IN the spherical $\triangle ZND$ let ZN be an Arc of the Merid. $= \text{Comp. Lat.} = 85^\circ$, and ZD an Arc of the Azim. cutting the hour-line DN at right angles in D , now $DN = \text{comp. } \odot \text{ decl.} = 67^\circ 58'$; therefore, per spherics, as $1. ZN = 85^\circ : \text{Rad.} :: 1. DN = 67^\circ 58' : 1. DZN = 68^\circ 31'$ the greatest azimuth from the north.



Then for the amplitude, let γH be an Arc of the horizon, γE an Arc of the equat. EH an Arc of an hour-line; then will $E\gamma H$ be comp. Lat. 85° and $EH = \odot \text{ declin.} = 22^\circ 2'$ to find γH the amplit.



As $1. E\gamma H : 1. EH :: \text{Rad.} : 1. \gamma H = 22^\circ 7' =$ the Sun's ortive amplitude northerly.

Q. E. F.

We have also received ingenious solutions to the 2d question by Mr. S. SMITH, by Mr. J. M. TUDOR, Mr. R. R. G. also to the 3d question by Mr. HALL; but are obliged to omit them for want of room.

Harpfwell, Feb. 15th, 1755.

S I R,

IF you think the following questions deserve a place in your magazine, by inserting the same, you will have a constant contributor of

Your most obedient servant,

W. BEVIL.

Question 5.

Given three opaque spherical bodies, A, B, and C, at a, b , and c , distance from one another: Required, at what distance from each ball, a luminous spherical body D, of

a less given magnitude, may be placed, so as to enlighten the most surface possible of the other three, when all their centers lie in the same plane?

Que-

Question 6.

Given the abscissa of a catenary = 60, and its corresponding semi-ordinate = 40, to find its least circumscribing triangle? And also the least cone, that will circumscribe the solid,

formed by the rotation of the catenary about its axis?

A PARADOX.

Place nine fifteens, to make a sum;
That which may be, a minimum?

Question 7. By S. SMITH of Darlington.

A Gentleman has in his garden, Lat. $54^{\circ} 33' N^{\circ}$. an octagonal pyramid, whose slant height is 17 yards 15 inches, and the periphery of the base $\frac{3}{4}$ of the same; also a pentagonal pyramid stands S. E. by S. of the former. As he was musing in his garden on May 21, 1754, he observed

the apex of the shadow, made by the pentagon, fell at the nearest corner of the base of the other; but on February the 3d following, he found the vertices of the shadows coincided. Required, their perpendicular heights, central distance, and time of each observation.

To the AUTHOR.

S-I R,

IT is asserted by anatomists, that the blood is carried from the left venticle of the heart to the exterior parts of the body along the arteries, and is conveyed back by the veins. I am at a loss to know, that, when a limb is cut off, how the blood returns to the heart, as it is most certainly

stopped in its course at the amputation.

Therefore, I should esteem it as a great favour, to be informed in this matter, by any ingenious person, who has sufficient condescension to deliver his sentiments in such terms as are easily understood.

On STELLA.

Who can behold such beauty and be silent? OTWAY'S ORPHAN.

SYLVIA may boast the bright, the sparkling Eye,
While, at her feet, the wounded lovers sigh.
Like the sweet rose the cheeks of *Cynthia* glow;
And *Lucia*'s breasts excel the new-fall'n snow.
The iv'ry rows of blooming *Flavia* grace,
And beauty add to *Flavia*'s youthful face.
For coral lips *Lucinda* claims the prize,
But ah! how soon such short-liv'd beauty dies!
For shape with *Marcia* none could e'er compare:
Belinda's pride dwells only in her air.
In *Celia*'s generous mind her glory lies;
She asks not coral lips, or sparkling eyes.
Beauties on each in diff'rent shapes display'd,
And diff'rent charms adorn each blooming maid.
But in bright *Stella* all those charms we find,
Of eyes, cheeks, teeth, lips, breasts, shape,
Air, and mind.

Whene'er she speaks a second *Pallas* talks:
Whene'er she steps a second *Venus* walks:
What graceful beauties in her * verses shine!
What noble thoughts adorn each am'rous line!
What flow, of wit, and praise to her belong!
Bright *Stella*'s wit would grace a *Dryden*'s song.
Beauty will haste, will quickly fade away,
But *Stella*'s virtues never will decay;
But, like a rock, (whose brave, unshaken sides
Boldly resist and stem the lashing tides)
Amid' the shocks of time will stand secure,
And scorn to pay obeisance to its pow'r.
See how she walks! majestically treads!
See with what graceful air the dance she leads!
See powder'd slaves on *Stella*'s steps attend,
And all, alike, her heav'nly form commend!
At ev'ry ball the peerless *Stella*'s seen;
She looks a goddess, and she moves a queen.
Go on, brave† youth, undaunted dare to run,
Fearless pursue the course you have begun;

Fly

* Alluding to some verses sent by her to Mr. ———. † Mr. ———. one of the lady's admirers.

Fly to the nymph, of *Stella's* charms approve,
 Become the captive to the queen of love.
 Should you be doom'd, or dare, in fields of
 blood
 To shew your courage for your country's
 good,
 May you, like pristine heroes, tread the plains,
 And meet with glory in your long campaigns!
 And when the bus'ness of the war is o'er,
 Crown'd with rich laurels hail your native
 shore!
 Flush'd with success seek love's enchanting
 Charms,
 And find a refuge in a *Stella's* arms!
 When winter frowns; when nipping frosts
 assail,
 And bind the earth in chains; when ratt'ling
 hail,
 And the soft downy flakes of melting snow
 Drop from the clouds, and into mountains
 grow;
 When tuneful larks are seen no more to fly,
 Or heard to warble in the morning's sky;

Gosport, Dec. 26,
 1754.

When ratt'ling thunder spreads its anger
 'round,
 And like loud earthquakes shakes the solid
 ground;
 When the proud, foaming waves, with bel-
 lowing roar,
 Fly from their bounds and lash the sounding
 shore;
 When the tall ships are in confusion tost,
 Dash'd on the rocks, or in the surges lost;
 When from their roots the lofty trees are torn;
 And high, in air, their pond'rous branches
 borne;
 When low'ring clouds the glorious sun o'er-
 spread,
 And all the glitt'ring globes of heaven shade;
Stella, e'en then, her blooming charms re-
 tains,
 And she in winter, as in summer, reigns.
 No blust'ring airs, no pride in her we see,
 The fair's adorn'd with graceful modesty.
 Born to be lov'd by all, and all to love:
 By all to be approv'd, and all approve:
 Hence future ages may, with pleasure, read,
 A second *Helen* was in *Gosport* bred.

W. A.

COLIN and LUCY. A FRAGMENT.

Dated in the Year 1564, being in or about the sixth Year of the Reign of Queen Elizabeth.

I.
 ON the banks of that crystalline stream,
 Where *Thames*, oft his current delays!
 And charms, more than poets can dream;
 In his *Richmond's* bright villa surveys.

II.
 Fair *Lucy*, of all the gay throng
 The fairest, that *Britain* has seen!
 Now drew ev'ry village along,
 From the day she first danc'd on the green.

III.
 Ah! boast not of beauty's fond pow'r,
 For short is the triumph, ye fair!
 Not fleetier the bloom of each flow'r;
 And hope is but gilded despair.

IV.
 His desire each swain, now, behold,
 By riches endeavours to prove!
 But *Lucy*, still cries, what is gold?
 Or wealth; when compar'd to his love?

V.
 No, *Colin*! together we'll wield
 Our sickles, in summer's bright day;
 Together, we'll leaze o'er the field;
 And smile all our labours, away!

VI.
 In winter, I'll winnow the wheat,
 As it falls, from your flail, on the ground:
 That flail will be music, as sweet,
 When your voice, in the labour, is
 drown'd.

VII.
 How oft, wou'd he speak of his bliss?
 How oft, wou'd he call her *bis* maid?
 And *Colin* wou'd seal, with a kiss,
 Ev'ry promise, and vow, which he said.

VIII.
 But, hark! o'er the grass-level land,
 The village bells found on the plain!
 False *Colin*, this morn, gave his hand;
 And *Lucy's* fond tears are in vain!

IX.
 Sad *Lucy*, too soon; heard the tale;
 Too soon, the sad cause she was told:
 That *bis*, was a nymph of the *vale*,
 That he broke his fond promise, for gold!

X.
 As she walkt by the margin, so green,
 That adorns * * * * * side; †
 How oft was she, languishing, seep?
 How oft wou'd she gaze on the tide?

XI.
 By the clear mirror, then, as she sate,
 That reflected herself, and the mead;
 A while she bewail'd her sad fate!
 And the green turf, still, pillow'd her head.

XII.
 There! there! is it *Lucy* I see? —
 'Tis *Lucy* the lost, undone, maid!
 Ah! no, 'tis some *Lucy*, like me
 — Some hapless, young, virgin betray'd.

XIII.

† In the original (as near as can be gathered) the line is,
 "That adorns *Thames's* flow'ry side."

XIII.

Like me, she has sorrow'd and wept ;
Like me ! she has fondly believ'd ;
Like me, her true promise she kept,
And, like me too, is justly deceiv'd !

XIV.

I come, dear companion in grief !
Gay scenes, and fond pleasures, adieu !
I come, and we'll gather relief ;
From bosoms so chaste and so true.

XV.

Like you ! I have mourn'd the long night ;
And wept out the day, in despair !
Like you ! I have banish'd delight ;
And bosom'd a friend in my care.

XVI.

Ye meadows, so lovely, * farewell !
Your velvet, still *Colin* shall tread :
All deaf to the sound of that *knell*,
Which tolls for his *Lucy*, when dead !

XVII.

Your wish will, too sure, be obey'd !
Nor *Colin*, her loss, shall bemoan :
Soon, soon shall poor *Lucy* be laid,
Where her heart shall be cold as your own.

XVIII.

Then, clasp'd in the arms of that fair,
Whose wealth has been *Lucy's* sad fate !
As, together, you breathe the free air,
And a thousand dear pleasures relate :

XIX.

If, chance, o'er my turf as you tread,
You dare to affect a fond sigh !
The primrose will shrink its pale head ;
And * * * * * die. †

XX.

Scarce echo had gather'd the sound,
But she plung'd from her grafs-springing
bed ;
The liquid stream parts, to the ground ;
And the mirror clos'd over her head.

XXI.

The swains of the village, at eve,
Oft meet at the dark-spreading *yew* ;
There, wonder how man cou'd deceive !
A bosom so chaste and so true.

XXII.

With garlands, of every flow'r,
Which *Lucy*, herself, shou'd have made !
They raise up a short-living bow'r,
And, sighing ! cry, *peace to her shade* !

XXIII.

Then, hand lockt in hand, as they move
The green-platting *billoc* around ;
They talk of sad *Lucy*, and love !
And freshen, with tears, the *fair* ground.

XXIV.

Nay ! wish they had never been born,
Or, liv'd the sad moment to view !
When a *Colin* cou'd, thus, be forsworn ;
And a *Lucy* cou'd, still, be so true !

To the AUTHOR of the GENERAL MAGAZINE of ARTS and SCIENCES.

S I R,

THE following original Cantata was the work of a gentleman now dead ; he wrote it, full of grief, for the decease of a young lady, whom he had debauched and left. If you think it worth a place in your Magazine, it is at your service.

I am, your humble servant,

C. C. A. B. W.

A C A N T A T A.

RECITATIVE.

T WAS darkness — murky darkness all a-
round,
And night her sable curtain close had
spread,
When *Florio* rais'd him from the dew-damp
ground,
And fought the sacred mansions of the
dead.
As o'er his lost *Maria's* tomb he hung,
Piercing the night's dull ear, a voice thus
sung.

AIR.

I.

Why those sighs and tears, fond youth ?
Thy *Maria* rests not here ;
Rewarded for her love and truth,
Now she guides yon starry sphere.

II.

Lo ! I clear thy mortal sight !
Now look up to heav'n, and see,
Where she sits in robes of light,
Nor wastes a moment's thought on thee.

III.

Yet seal'd for falsehood, black as thine,
Trembling hear thy own sad fate ;
Ever shalt thou droop and pine,
And sorrow all thy steps shall wait.

RECITATIVE.

With horror chill'd the youth astonish'd
stands ;
“ Be this my fate, if such heav'n's will com-
mands.”
But shall not penitence (he cry'd) atone ?
Despair strait answer'd — death for death
alone.

E

AIR.

* Or, lively. The 2d letter being not visible.

† As near as can be discerned, thus :

“ And the violet languish and die.

ARR.

Ye gay! ye frolick youth, beware:
Nor ruin the too easy fair;

Deceive not her who trusts to you,
Lest *Florio's* fate should be your *due*.

An HYMN, occasioned by the 65th Psalm.

LET praise to thee, all-sov'reign pow'r,
arise,
Who fix'd the mountains, and who spread the
skies;
Who o'er thy works extend' st paternal care,
Who's kind protection all the nations share:
From the glad climes, whence morn in beauty
drest,
Forth goes, rejoicing, to the farthest west;
On thee alone their whole dependence lies,
And thy rich mercy every want supplies:
O thou great author of the extended
whole!
Revolving seasons praise thee as they roll;
By thee spring, summer, autumn, winter
rise;
Thou giv'st the frowning, thou the smiling
skies:

By thy command the soft'ning show'r distils,
Till genial warmth the teeming furrow
fills;
Then fav'ring sun-shine o'er the clime ex-
tends,
And blest by thee the verdant blade ascends;
Next spring's gay products cloathe the
flow'ry hills,
And joy the wood, and joy the valley fills;
Then soon thy bounty plumps the golden ear,
And bids the harvest crown the fruitful year:
Thus all thy works conspicuous worship
raise,
And nature's face proclaims her Maker's
praise.

S. C.

PROLOGUE, to the FAIRIES.

Written and spoken by Mr. GARRICK.

Enter—Interrupting the Band of Music.

A Moment stop your tuneful fingers, pray,
While here, as usual, I my duty pay.

[To the Audience.

Don't frown, my friends, [to the band]
you soon shall melt again;

But, if not there is felt each dying strain,
Poor I shall speak, and you will scrape in
vain.

To see me now, you think the strangest
thing!

For, like friend *Benedick*, I cannot sing:
Yet in this prologue, cry but you, *Coraggio!*
I'll speak you both a jig, and an *adagio*.

A *Persian* king, as *Persian* tales relate,
Oft' went disguis'd, to hear the people prate;
So, curious I, sometimes steal forth, *incog*,
To hear what critics croak of me—king *Leg*.
Three nights ago, I heard a *Tête à Tête*
Which fix'd, at once, our *English Operas*
fate:

One was a youth born here, but flush from
Rome;

The other born abroad, but here his home;
And first the *English* foreigner began,
Who thus address'd the foreign *Englishman*:
An *English Opera*! 'tis not to be borne;
I, both my country, and their music scorn:
Oh, damn their *Ally Croakers*, and their
Early-born.

Signor si—but sons—wors recitativo:

Il tutto, è bestiale e cativo;

This said, I made my exit, full of terrors!
And now ask mercy, for the following errors:

Excuse us first, for foolishly supposing
Your countryman could please you in com-
posing;

An *Op'ra* too!—play'd by an *English* band!
Wrote in a language which you under-
stand!—

I dare not say, *WHO* wrote it—I could
tell ye,

To soften matters—*Signor Shakespearelli*:
This aukward drama—(I confess th' of-
fence)

Is guilty too, of poetry and sense:

And then the price we take—you'll all
abuse it,

So low, so unlike *Op'ras*—but excuse it,
We'll mend that fault, whenever you shall
chuse it.

Our last mischance, and worse than all the
rest,

Which turns the whole performance to a
jest,

OUR fingers all are well, and all will do
their best.

But why would this rash fool, this *English*-
man,

Attempt an *Op'ra*?—'tis the strangest plan!
Struck with the wonders of his master's
art,

Whose sacred dramas shake and melt the
heart,

Whose heav'n-born strains the coldest breast
inspire,

Whose chorus-thunder sets the soul on fire!

In-

Inflam'd, astonish'd! at those magic airs,
When *Sampson* groans, and frantic *Saul* de-
spairs,
The pupil wrote—his work is now before
ye,
And waits your stamp of infamy, or glory.

Yet, ere his errors and his faults are known,
He says, those faults, those errors are his
own;
If thro' the clouds appear some glimm'ring
rays,
They're sparks he caught from his great ma-
ster's blaze.

A S O N G.

Sung by Mr. BEARD in Proteus, or Harlequin in China.

Good father, be peaceful, your av'rice asswage, assuage other passions
becoming your age. Release your base soul from the old iron chest, and
Cho.
melt your hard heart on your daughter's soft breast. Then let all rejoice with one heart &
voice. A God has ordain'd it, a God has ordain'd it, applaud, ap-

II.

Do you, my young bridegroom, keep sacred
those bands;
Let your heart ever answer the union of
hands:
Be you prompt to learn, never forward to
teach;
Be profuse of your smiles, but be sparing of
speech,

III.

And now, brother *Proteus*, one lecture for
you;
To *Britain* return, bid to *China* adieu:
Chinese and *Grotesque* so engrosses high life,
Some lady'll buy you, and some lord take
your wife,

Several pieces of poetry are come to hand; which for want of room we must defer.—Crito's paraphrase will be in our next. We return thanks to the ingenious authors, of the many encomiums on this work: and shall do our utmost, to preserve their good opinion; but must beg their excuse for not inserting them in our Magazine: as we apprehend such a measure, would savour too much of vanity.

N. B. We have not inserted the account of a new-invented clock from North Curry, as it is proposed thereby to shew a perpetual and equable motion; the first of which is demonstrably impossible, and the other quite impracticable, in the nature of things; it being our settled purpose, never to amuse our readers with any thing in the mathematical or mechanical way, but what may afford them a rational speculation, or be of some real use in business.

Our correspondents are desired for the future, to direct all their letters, that contain any thing relative to this General Magazine, for Mr. Owen (only) at Temple-Bar.

A CHRONOLOGICAL MEMOIR of Occurrences.

For FEBRUARY, 1755

FOREIGN AFFAIRS.

Russia.

AN edict was published for preventing an ordonnance of the 29th of November last, relating to the exportation of Russian merchandize being put into execution; her imperial majesty declaring, that the ordonnances relating thereto, shall remain on their antient footing.

Sweden. The king caused an advertisement to be published, offering a large reward to such persons as shall discover the author or authors of counterfeit bank notes, or bills of exchange; and a chapter of the order of the sword has been held, when his majesty created several new knights of that order. It is also affirmed here, that the conferences for the regulation of the limits in Finland, will be renewed at Abo, in April next, when that intricate affair will be settled to the advantage of both parties.

Denmark. —That the queen continues in perfect health, and they are in daily expectation of her delivery —That a camp will be formed next summer, and orders are issued for furnishing the necessary magazines for that purpose.

Poland. The king has caused an order to be sent into the several Palatinates of Poland, bordering upon Russia, forbidding all his officers in those parts, to receive any deserters from the Russian troops. That the Palatine of Novogrod, died at Grodno; and that the Palatine of Podlachia, died at his country seat.

Germany. Several courriers arrived from foreign courts, on which have been held divers councils in the presence of their imperial majesties—and that a great number of workmen were sent from thence to Hunga-

ry, to be employed in repairing the fortifications of that kingdom.—The weather here continues so very severe, that notwithstanding the centinels are ordered to be relieved every half hour, two of them have died with cold.

Italy. The differences which have for a long time subsisted between the court of Naples and the order of Malta, are at length amicably adjusted.—Mount Vesuvius continues to throw out great quantities of fire, which runs off in torrents, as mentioned in our last.

France. We are informed, that the king has ordered a Lettre de Cachet, to be dispatched to the archbishop of Aix, commanding him to repair to a certain little town in his diocese, there to remain in exile: his majesty, at the same time, sent orders to the parliament of Province, to discontinue any further proceedings against that prelate.

United Provinces. The marquis de Grimaldi, ambassador from Spain to this court, is shortly expected. The states of this province separated, after having agreed to raise the same public taxes as were collected last year.

Algiers Dec. 11. The Dey was assassinated in his palace, and the grand treasurer mortally wounded, by 6 soldiers, while they were paying them in the court-yard. They were at last cut to pieces; though things hung in the balance for above half an hour. The treasurer is since dead of his wounds. One of the rebels, after taking the Dey's hand to kiss, drew a concealed dagger, and run it into his breast, soon after which, he dropped. At the same time another attacked the treasurer. The first con-

conspirator, when the Dey fell, took off his turbant, put it on his own head, and placed himself in his seat, and, imagining he should be acknowledged Dey, began to harangue the Divan. He then ordered the band of music to play, and the drums to beat. He had thus sat unmolested above a quarter of an hour, and had he continued in the same situation a quarter of an hour longer, he would have been declared sovereign: but one of the Chiaufes, or messengers of the palace, taking courage, snatched up a carbine, and shot him dead: this example encouraged the other Chiaufes, and his five accomplices were soon dispatched.

Ali Bashaw, the Aga of the Spahis, or Generalissimo, was immediately sent for, and placed in the seat of the murdered Dey: the cannon were fired, and, in one hour's time, from the most disturbed situation imaginable, perfect tranquility was restored to the city.

The present Dey is a hearty robust man, aged 46; the late Dey was 75 years old, and in the 6th year of his reign.—The conspirator who killed the Dey had been bastinadoed last year by his order; the rest were all foldiers, one of them spun linen, and another was a cobbler.

L O N D O N,

Jan. 27. ON his majesty's proclamation, promising a bounty of 30s, to every able seaman, who would voluntarily enter on board the royal navy, 200 Greenwich-pensioners offered themselves, and were accepted. The same day orders were sent to the keeper of Newgate, to discharge the smugglers, and prisoners for small debts, on condition of their serving on board the king's ships.

28. The buildings of captain Huddy's rope-walk at Stepney causeway, took fire, and the flames communicating to another building, both were consumed, with great quantities of pitch, tar, spun-yarn and cordage.

30. The watermen's company appointed 500 men to serve on board the fleet now fitting out.

31. Col. Dunbar's, and Sir Peter Holket's regiments sailed from Ireland for Virginia, in 16 transports, under convoy of two men of war.

Feb. 5. The Russian ambassador gave a most magnificent ball at Somerset-house, at which his majesty and the royal family were present. They first paid a visit to the duchess of Norfolk, in St. James's square, where a portico covered with canvas was erected from the door to the foot-way, for the chairs to set down the ladies under cover. From thence they proceeded to Somerset-house, in chairs, continuing for a considerable time without intermission. It would take up too much room to display the grandeur of the entertainment, or the brilliancy of the illustrious assembly, who vied with each other in richness of attire. Few exhibitions of this kind have equalled, none excelled it. The number of persons was about 1400. All the company, except his majesty, unmasked at 9 o'clock.

7. The scaffolding, in Westminster-abbey, was taken down from before a mausoleum,

erected to the memory of the brave captain Cornwall, commander of his majesty's ship the Marlborough, who, fighting for his country, gloriously fell in the naval engagement off Toulon, between the British fleet under admiral Matthews, and the combined fleets of France and Spain. February 11, 1744, O. S.

Quis desiderio sit pudor, aut modus

Tam chari capitis? HOR.

This monument, which is near 36 feet high, has a bold base and pyramid, of rich Sicilian jasper. Against the pyramid is a rock, (embellished with naval trophies, sea weeds, &c.) in which are two cavities. In one a Latin epitaph is read. In the other cavity, is a view of the sea-fight abovementioned, in basso relievo; on the foreground whereof the Marlborough, (of 90 guns) is seen fiercely engaged with admiral Navarro's ship, (the Real, of 114 guns) and her two seconds; all raking the Marlborough fore and aft. On the rock stand two figures. The one represents Britannia, under the character of Minerva, accompanied with a lion. The other figure is expressive of fame, who, having presented to Britannia a Medallion of the hero, supports it, whilst exhibited to public view. The Medallion is accompanied with a Globe, and various honorary crowns, as due to valour. Behind the figures is a lofty, spreading palm-tree, (whereon is fixed the hero's shield or coat of arms) together with a laurel-tree; both which issue from the naturally barren rock; as alluding to some heroic and uncommon event.—This monument, designed, and executed by Mr. Taylor, and erected by order of his majesty, upon the unanimous vote of the house of commons, is an illustrious instance of national gratitude, as well as of good policy; in being devoted to the memo-

ry of a greatly distinguished naval officer; our navy being the well-known palladium of the British empire, and of its extensive commerce. And shews (with other monuments set up in this abbey) the vast improvement made here, of late years in sculpture; which, with her sister arts, is making hasty advances towards perfection in this kingdom.

On Capt. JAMES CORNWALL,

THO' Britain's genius hung her drooping head,

And mourn'd her antient naval glory fled;
On that fam'd day, when France, combin'd
with Spain,

Strove for the wide dominion of the main:

Yet, Cornwall! all with general voice
agree

To pay the tribute of applause to thee.

When his bold chief, in thickest fight engag'd,
Unequal war with Spain's proud leader
wag'd;

With indignation mov'd, he timely came,
To rescue from reproach his country's name:
Success too dearly did his valour crown;
He sav'd his leader's life, but lost his own.

These fun'ral rites a grateful nation pays,
That lateft times may learn the Hero's
praise:

And chiefs, like him, shall unrepining lead,
When senates thus reward the glorious deed.

Circuits appointed for the Lent Assizes.

OXFORD CIRCUIT.

Mr. Justice Birch, Mr. Baron Adams,
Berks, Monday, March 3, at Reading.
Oxford, Wednesday 5, at Oxford.
Worcestershire, Saturday 8, Worcester.
City of Worcester, same day, at the said city.
Staffordshire, Thursday 13, at Stafford.
Shropshire, Monday 17, at Shrewsbury.
Herefordshire, Saturday 22, at Hereford.
Monmouth, Thursday 27, at Monmouth.
Gloucestershire, Saturday 29, at Gloucester.
City of Gloucester, the same day, at the said City.

MIDLAND CIRCUIT.

Lord Chief Baron Parker, Mr. Baron Smythe.
Northamptonshire, Tuesday March 4, at Northampton.
Rutland, Friday 7, at Oakham.
Lincolnshire, Monday 10, at the Castle of Lincoln.
City of Lincoln, the same Day and Place.
Nottinghamsh. Friday 14, at Nottingham.
Town of Nottingham, Saturday 15, at the Town.
Derbyshire, Tuesday 18, at Derby.
Leicestershire, Friday 21, at the Castle of Leicester.

Borough of Leicester, Saturday 22, at the Borough.

City of Coventry, Tuesday 25, at the City.

Warwickshire, Wednesday 26, at Warwick.

NORTHERN CIRCUIT.

Lord Chief Justice Ryder, Mr. Justice Clive.
Lancashire, Saturday March 8, at the Castle of Lancaster.

City of York, Monday 17, at the Guildhall.
Yorksh. the same day, at the castle of York.

NORFOLK CIRCUIT.

Ld. Chief Justice Willes, Mr. Justice Forster.
Bucks, Monday March 10, at Aylesbury.
Bedfordshire, Thursday 13, at Bedford.
Huntingdonsh. Saturday 15, at Huntingdon.
Cambridgeshire, Tuesday 18, at Cambridge.
Norfolk, Friday 21, at Thetford.
Suffolk, Tuesday 25, at Bury St. Edmunds.

WESTERN CIRCUIT.

Hon. Mr. Baron Legge, Mr. Justice Bathurst.
Southampton, Tuesday March 4, at the castle of Winchester.

Wilts, Saturday 8, at New Sarum.

Dorset, Thursday 13, at Dorchester.

City and County of Exeter, Monday 17, at the Guildhall.

Devon, same day, at the castle of Exeter.

Cornwall, Tuesday 24, at Launceston.

Somerset, Monday 21, at the castle of Taunton.

HOME CIRCUIT.

Mr. Justice Denison, Mr. Justice Willmot.
Hertford, Thursday, March 6, at Hertford.
Essex, March 10, at Chelmsford.

Kent, Monday 17, at Rochester.

Suffex, Monday 24, at East-Grinstead.

Surrey, Monday 31, at Kingston on Thames.

NORTH WALES CIRCUIT.

Hon. Chief Justice William Noel, Hon. John Talbot.

Montgomeryshire, Wednesday March 19, at Pool.

Denbighshire, Tuesday 25, at Ruthin.

Flintshire, Monday 31, at Flint.

Cheshire, April 5, at the castle of Chester.

SOUTH WALES CIRCUIT.

Hon. John Williams, John Hervey, Esqrs.
Cardiffe, Thursday, March 27.

Brecon, Wednesday April 2.

Presteign; Tuesday 8.

Sheriffs appointed by his majesty in council for the year 1755.

Berkshire, Sir Mark Stuart Pleydell, of Colehill, Bart.

Bedfordshire. Tho. Vaux, of Whipsnade.
Buckinghamshire, Henry Uthwaite, of Lathbury.

Cumberland, Tim. Fetherstonhaugh, of Kirk Osvald.

Cheshire, Tho. Slaughter, of Newton.

Camb' and Hunt' William Mitchell, of Hemingford.

Cornwall, Francis Beachamp, of Gwerinop.
Devonshire, Sir J. Rogers, of Plymstock, Bt.
Dorsetshire, Tho. Strode, of Bemister.
Derbyshire, Philip Gell, of Hopton,
Essex, Rd. Chiswell, of Debden.
Gloucestershire, Ja. Lamb, of Fairford.
Hertfordshire, G. T. Heysham, of Paul's Walden.
Herefordshire, Tho. Penoyre, of Clifford.
Kent, George Sayer, of Charing.
Leicestershire, Sir J. D'ners, of Swithland, Bt.
Lincolnshire, W. Marshall, of Theddlethorpe.
Monmouthshire, J. Jones, of Craigwith.
Northumberland, J. Swinburn, of Westgate.
Northamptonshire, H. White, of Woodend.
Norfolk, Miles Branthwayte, of Attlebridge.
Nottinghamshire, Sir Tho. Parkyns, of Bunny, Bart.
Oxfordshire, Sir W. Burnaby, of Broughton, Knt.
Rutlandshire, J. Maydwell, of Barr Gates in Oakham.
Shropshire, Fra. Turner Blythe, of Shrewsbury.
Somersetshire, Roger Lyde, of Chellwood.
Staffordshire, J. Burriſh Leigh, of Rushall.
Suffolk, Cooke Freſton, of Mendham.
Southampton, John Barnard, of Alresford.
Surry, John Mackerill, of Bermondſey.
Suffex, John Major, of Eaſt Grinſted.
Warwickshire, W. Willington, of Hurley.
Worcestershire, Fra. Highway, of Chadley.
Wiltshire, Arthur Evans, of the Cloſe of New Sarum.
Yorkshire, Tho. Foljambe, of Aldwarcke.

SOUTH WALES.

Brecon, Tho. Price, of Talgarth.
Carmarthen, Rees Price, of Carmarthen.
Cardigan, W. Bowen, of Troedyroyr.
Glamorgan, Thomas Popkins.
Pembroke, John Hook, of Bangeſton.
Radnor, W. Goſſe, of Preſteign.

NORTH WALES.

Angleſey, Hugh Davies, of Brynharddyn.
Carnarvon, Rd. Lloyd, of Tan y bryn.
Denbigh, Watkin Wynne, of Voylas.
Flint, John Barker, of Overton.
Merioneth, Wm. Humphreys, of Maerdu.
Montgomery, Jenkin Lloyd, of Cloch ſaen.

SOUTH WALES.

J. Pollen, Eſq; and Ed. Poore, Eſq; juſtices.
Carmarthen, Saturday, March 29.
Haverfordweſt, Friday, April 4.
Cardigan, Thursday, April 10.

Feb. 8. A proclamation was publiſhed in the Gazettee for recalling, and prohibiting, ſea-men from ſerving foreign princes and ſtates: and for the increaſing the bounty money, to all able-bodied ſea-men to 3l. alſo offering a

reward of 2l. to be paid to any perſon who ſhould diſcover any ſuch, who ſecrete themſelves; and 30s. for every ordinary ſea-man.

9. The ſhips commiſſioned at Rocheſter, and their commanders, are as follow, viz.
Guns 90, Prince, Capt. Saunders, fitting, as it is ſaid, for Lord Anſon.

74, Torbay, Capt. Colby, fitting for admiral Boſcawen.

90, Barſteur, Lord Harry Poulet,

70, Yarmouth, Capt. Norris.

70, Naſſau, Capt. Cockburne.

60, Dunkirk, Capt. Howe.

60, Litchfield, Capt. Stevens.

70, Culloden, Capt. Ward, at the Nore.

Seven more, chiefly of the line, are getting ready for the ſea.

The number and claſs of ſhips, fitting out at Portſmouth, are,

Guns.	N ^o .	Guns.	N ^o .	Guns.	N ^o .
90	— 2	60	— 2	20	— 1
80	— 1	50	— 2	Sloop	1
74	— 7	40	— 2		

12. A general court was held of the governors of St. Luke's hoſpital for lunatics, when Sir William Beauchamp Proctor, Bart. was choſen one of the vice-pretidents, in the room of Sir James Lowther, deceaſed; and they ordered 10 more cells to be appropriated to the uſe of incurables. The committee, among other things, reported, that the ſtock ſtanding in Eaſt India annuities, for the uſe of this charity, amounted to 10,000l. And ſince the firſt of February, 1754, the following legacies have been left for the ſupport of it.

	l.	s.	d.
By Sir Hen. Marshall	—	—	200 0 0
Mrs. Heſter Fuller, for incurables only	—	—	500 0 0
Jos. Fawthorp, Eſq;	—	—	50 0 0
Mr. Rob. Thatcher	—	—	50 0 0
Mrs. Eliz. Hill	—	—	30 0 0
Mr. Rd. Worth	—	—	100 0 0
Mrs. Eliz. Schaffer	—	—	100 0 0
Sir James Lowther, Bart.	—	—	100 0 0
Lewin Cholmley, Eſq;	—	—	50 0 0
William Stratton, Eſq;	—	—	200 0 0

Total 1375 0 0

About four o'clock, in the morning, was ſeen to drop from the ſtars, by two gentlemen, in the pariſh of Medmenham, near Great Marlow in Buckinghamſhire, a ſurprizing meteor of a fierce, fiery ſubſtance: it fell in a direct perpendicular on a ſteep hill, about 500 yards diſtance from where they ſtood. It appeared when it came out of the horizon, ſomewhat larger than the ſhooting of a ſtar, and increaſed its magnitude when it fell, to near three feet in diameter; and left behind it ſeveral ſparkles as it came

came down. When the fire came near the earth, the light appeared as bright as at noon-day, and left a suffocating and sulphurous smell.

15. The Hon. E. India Company have received advice, by Capt. Kent, commander of the Dragon, from Coast and Bay, and last from Madagascar, at which place Commodore Watson was safely arrived with the men of war and transports under his com-

mand, in good condition; where he landed his men for refreshment, purposing soon to sail for India.

20. The Right. Hon. the Earl of Hertford set out for Paris, in quality of ambassador from his Majesty.

The E. India company shipped warlike stores to the amount of 24,000 l. for their settlements.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane.

- Jan. 23. *The Way of the World*.—Proteus.
 24. *Much ado about nothing*.—Proteus.
 25. *The Mourning Bride*.—Chaplet.
 27. *The Mourning Bride*.—Anatomist.
 28. *The Busy body*.—Proteus.
 29. *The Mourning Bride*.—Lethe.
 31. *Every Man in his Humour*.—Devil to pay.
 Feb. 1. *Barbarossa*.
 3. *An English Opera*.
 4. *Barbarossa*.
 5. *Twelfth Night*.
 6. *An English Opera*.
 7. *Romeo and Juliet*.
 8. *Provoked Wife*.—Proteus.
 10. *The Faries*.
 11. *Barbarossa*.
 13. *The Faries*.
 15. *Barbarossa*.
 17. *The Faries*.
 18. *As you like it*.—Proteus.

Covent-Garden.

- Venice preserved*.—Scapin.
Othello.—Harlequin Skeleton.
The Nonjuror.—Scapin.
Coriolanus.—Harlequin Skelecon.
Julius Cæsar.—Virgin Unmasked.
The Twin Rivals.—Orpheus.
The Inconstant.—Orpheus.
The Miser.—Orpheus.
The Recruiting Officer.—Orpheus.
The Distressed Mother.—Orpheus.
The Suspicious Husband.—Orpheus.
The Committee.—Orpheus.
Cato.—Orpheus.
Love for Love.—Orpheus.
The Kind Impostor.—Orpheus.
The Way of the World.—Orpheus.
Love for Love.—Orpheus.
The Provoked Husband.—Orpheus.
King Henry the Fifth.

BIRTHS.

Feb. 8. Her grace the duchess of Montross, delivered of a son and heir.

9. The right hon. lady Athenry, of a son and heir, at Townly-hall, Ireland.

The great Princess of Russia, of a young Prince.

18. Her grace the duchess of Hamilton, of a son and heir, at Edinburgh.

MARRIAGES.

Jan. 16. Mr. Peter Gaussen, jun. to miss Bosanquet, daughter of Sam. Bosanquet, Esq; of Epping Forest.

17. G. Dixon, merchant, Lombard-street, to miss Ann Carlton of Mitcham.

25. Thomas Parker, Inner Temple, Esq; to miss Watkins, of Hackney.

Feb. 4. Alexander Power, Esq; to miss Willis, daughter of the bishop of Bath and Wells.

5. Francis Beckford, Esq; of Catley, Cambridgeshire, to miss Susanna Love, of Bedford-row.

6. The rev. Dr. Allen, sub-dean of his majesty's chapel, to miss Grainger of Salisbury-court, Fleetstreet.

T. C. Tracy, eldest son to the right hon. lord viscount Tracy, to miss Harriot Bathurst, daughter of the hon. Selina Bathurst.

Edmund Wallis, Esq; to miss Sarah Hawkins, of West-Ham.

7. Adam Drummond, Esq; to the right hon. lady Cath. Ashe.

10. Wm. Bowen, Esq; of St. James's, to miss Morgan, of Cavendish-square.

11. Fran. Eyre, Esq; of Wakewood, Oxfordshire, to the right hon. lady Mary Ratcliff, the present countess of Newburgh in Scotland.

The rev. Mr. Romaine, lect. of St. Dunstan's in the West, to miss Price, of Shore-ditch.

13. Adam Jellicoe, of the pay-office, to miss Chitty, of Ironmonger-lane.

18. Capt. Berragon, of gen. Wolfe's regiment, to miss Taffel.

22. The rev. Mr. John Trye, rector of Leekhampton, Gloucestershire, to miss Molly Longford.

DEATHS.

Jan. 15. The right hon. countess of Antrim.

Feb. 2. Charles Mainwaring of the South-sea-house.

Arthur Stert, Esq; at Memland near Plymouth, who represented the said Borough, from the first parliament of his present majesty, till the last general election.

3. Edmund Burt, Esq; late agent of general Wade's regiment, and the author of a description of Scotland.

21. Her grace the duchess of Manchester.

Civil and Military Preferments.

Whitehall. HIS Majesty has been pleased to grant to Matthew Lamb, of Brokers Hall, Hertfordsh. the dignity of a baronet of Great Britain.

Stephen-Martin Leake, Esq; to be Garter king at arms, in the room of John Anstice, deceased.

Charles Townley, Esq; to be Clarencieux king at arms.

Jan. 7. The king was pleased to appoint Charles Duke of Marlborough to be Keeper of the Privy Seal, in the room of E. Gower deceased.

Granville, now Earl Gower, to be Lieut. and Custos Rotulorum of Staffordsh. in the room of his father.

9. The D. of Bolton, and the Earl of Egmont sworn of the Privy council.

14. The D. of Rutland appointed steward of the household, in the room of the D. of Marlborough, now keeper of the Privy seal.

18. The King was pleased to appoint John Douglass, Esq; to be captain of a troop in the Royal regiment of North British dragoons, commanded by lieut. gen. J. Campbell, Francis Lindsey to be capt. lieutenant, James Dalrymple, gent. to be lieut. and Basil Heron to be cornet in the same.

William Egerton, gent. to be sub-br. and cornet to the second troop of horse guards.

23. William Littleton, Esq; capt. general and governor of S. Carolina, in the room of —Glenn, Esq; recalled.

Ld Monfort appointed high steward of Cambridge, in the room of his father dec.

28. The Rt. Hon. Robert Dundas, advocate for Scotland.

Henry St. John, Esq; to be ensign in the Cold-stream regiment of guards.

Dr. Blair elected a fellow of the Royal society.

Febr. 2. The Rt. Hon. Ld Anson, first Ld of the admiralty, was chosen a governor of the Charter-house, in the room of Ld Gower deceased.

The same day his Majesty was pleased to appoint the Hon. Colonel Waldgrave to the command of the regiment of dragoons on the Irish establishment.

Sir Martin Wright, one of the Judges of the court of King's Bench, resigned, on ac-

count of his age; and Sir J. Hardley Willmot was appointed a judge of that court in his room.

3. The Lords of the Admiralty appointed capt. Cha. Colby commander of the Torbay of 80 guns.

J. Williams, Esq; Attorney gen. of Chester, is made a Welch judge, in the room of Rich. Carter, Esq; deceased; and Hen. Hall Esq; is appointed Attorney gen. of Chester, in the room of judge Williams.

5. Charles Hardy, Esq; appointed governor of New York, vacant by the death of Sir Danvers Osborn, Bt.

6. At the Grand council held at St. James's his Majesty was pleased to appoint Henry Osborn, Esq; to be vice admiral of the red; Tho. Griffen, Esq; and Sir Edw. Hawke to be vice admirals of the white; Ch. Knowles, Esq; Hon. J. Forbes, and the Hon. Edward Boscawen, to be vice admirals of the blue, Charles Watson, Esq; and Temple West, Esq; to be rear-admirals of the red. George Pococke, Esq; and the Hon. Charles Townshend, to be rear-adm. of the white; and Savage Mostyn, Esq; rear-adm. of the blue.

11. Sir Eardly Wihnot, Kt. Mr. Hewit, and Mr. Martin, were called to the degree of sergeants in Westminster-hall.

Richard Tyrrel, Esq; appointed commander of the Ipswich, 70 guns.

12. Sackville Fox, Esq; genealogist of the most noble order of the Bath.

14. The King was pleased to appoint the Rt. Hon. Ld Ducie, of Moreton, to be his lieutenant, custos rotulorum, and vice admiral of the county of Gloucester; also constable of the castle of St. Briavells, and keeper of the deer and woods in the forest of Dean in the said county.

15. Edw. Winnington, of Stanford-court, Worcestershire, Charles Sheffield, of Normandy, Lincolnsh. and Horatio Mann, resident at the court of Florence, were created baronets of Great Britain.

Edward Falkingham, Esq; comptroller of the navy, in the room of admiral Mostyn.

Thomas Cooper, Esq; commissioner of the victualling office, in the room of captain Falkingham.

ECCLESIASTICAL PREFERMENTS.

Jan. 1. Revd. Jonathan Shipley, A. M. presented to the Rectory of Deer, Suffex, 120 l. per Ann.

Fred. Comer, B. A. to the Rectory of Hebdon, Wiltsh.

Mr. Herwood, to Weston, Northamptonshire.

Samuel Cushing, A. M. to the vicarage of Lympsfield, Dorset, 120 l. per ann.

T. Fownes, A. M. to the vicarage of Brixome, Devonsh.

Mr. Adamson, to Crestwich and Soley rectories, Norfolk.

George Ch. Bleek, A. M. to the vicarage of Berkey, Gloucestershire.

Thomas Longman, B. L. to the Rectory of St. Mary in the Vale, near Totness, Devonshire.

Charles Baker, A. M. to the Rectory of

Hembury St. Michael, Wiltsh. 170l. per an.

Samuel Leach, B. A. to the Rectory of Coombe Leigh, Surry.

Dan. Bradbury, A. M. to the vicarage of

Long Martick, Northamptonsh. 140l. per an.

John Brigham, B. D. to the vicarage of

Strandground and Fawcet, Northamptonsh.

230l. per ann.

Mr. Dixon elected lecturer of St. Dionis Back-church, Fanchurch-street.

Mr. Lawrence, minister of St. Mary's Aldermanbury, in the room of Mr. Sanford deceased.

Mr. Stanby, lecturer of St. Mary le Strand.

J. Skelton, to the vicarage of Gornhill, Lincolnshire.

John Bewton, M. A. to the vicarage of Melksham, Wiltsh. 300l. per ann.

The Rev. Henry Skey, to the rectory of Cranford, Middlesex.

Jacob Millar, B. A. to the rectory of Milford on the Rye, Monmouthsh. 115l. per an.

Charles Lucas, B. A. to the vicarage of Lesney, Gloucesterh.

The Rev. William Smythe, to the rectory of Thoydon, Essex.

Samuel Strickland, B. L. to the vicarage of Barton Blean, Northamptonsh.

Thomas Langford, B. A. to the rectory of Melcomb St. Andrews, Suffex.

Daniel Downe, A. B. to the living of St. Martin's Stamford Baron.

Alex. Richardson, to the rectory of Symstone, Bucks, 200l. per ann.

The Rev. M. Ja. Daville to the vicarage of Islington St. Mary, and Wiggshall St. Mary, Norfolk.

The Rev. Mr. Barker, to the rectory of Culmington Shroph. 150l. per an.

DISPENSATIONS to hold two livings.

John Vade, A. M. the vicarage of Croydon, Surrey, with that of St. Nicholas, Kent, 350 l. per ann.

Richard Jones, A. M. the rectory of Luddington, with the vicarage of Wheatley, Northamptonsh.

Thomas Slater, A. M. the rectory of Salford, with the vicarage of Kenfham, Somersf.

Henry Jones, A. M. the rectory of Crawley, with the chapel of Hunton, Hampshire.

Andrew Edwards, A. M. the rectory of Aber, Carnarvonsh. with the rectory of Dolgelly, Merionethsh.

The Rev. William Smith, B. L. to the rectory of Stapleford-Tawney, Exon; and

the rectory of Thyden Mount, in the same county.

B ————— K R ————— T S.

Thomas Jetherell, of Huntingdon, corn mer.

Thomas Barrett, of Brecon mercer.

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John M^r William, and Alexander Shidden, of Bristol, merchants and partners.

John Boover, of Wiltshire-lane, E. Smithfield, London, brewer.

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Robert Howill, of Bell-alley, Coleman-street, London, taylor.

Joseph Rumpe, of Buxton in Norfolk, miller.

Henry Lindsey, of Seven Oakes in Kent, Shopkeeper.

John and James Gatward, of Cambridge, coal merchant.

William Wilson and William Devery, of Spittle-fields, scarlet-dyers.

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Amos Boulton, of Arundel, Suffex, shipwright.

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James Freshfield, of St. Giles's in the fields, hosier and chapman.

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BILL of Mortality from Jan. 21 to Feb. 18.

Buried		Christened	
Males	982	Males	647
Females	1045	Females	628
2027		1275	

Buried,	
Within the walls	198
Without	498
Mid. and Surry	880
City & Sub. West.	451
2027	

Weekly Jan. 28.	
495	
Feb. 4.	501
11.	508
18.	523
2027	

Weekly Jan. 28.	
495	
Feb. 4.	501
11.	508
18.	523
2027	

Weekly Jan. 28.	
495	
Feb. 4.	501
11.	508
18.	523
2027	

Weekly Jan. 28.	
495	
Feb. 4.	501
11.	508
18.	523
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Miscellaneous Correspondence,

For MARCH, 1755.

The ESSAY on the *Usefulness* of MATHEMATICAL LEARNING, *continued*
from Page 18 of our last.

If we consider to what perfection we now know the courses, periods, order, distances, and proportions of the several great bodies in the universe, that fall within our view, we shall have cause to admire the sagacity and industry of the *mathematicians*, and the power of *numbers* and *geometry*.

With respect to *light*, how unsuccessful are enquiries about this glorious body, without the help of *geometry*! Those versed in this science, have discovered, that it has two remarkable properties; the reflection and refraction of its beams; and from these, have invented the noble sciences of *optics*, *catoptrics*, and *dioptrics*. They have also demonstrated the causes of several celestial appearances that arise from the inflection of its beams, both in the heavenly bodies themselves, and in other phenomena, as the *parhelia*, the *iris*, &c.

Of *air* and *water*, we know little but what is owing to *mechanics* and *geometry*. The two chief properties of *air*, its gravity and elastic Force, have been discovered by mechanical experiments. From thence the decrease of the air's density, according to the increase of the distance of the earth, has been demonstrated by *geometers*, and confirmed by experiments of the subsidence of the *mercury* in the *Torricellian experiment*. From this, likewise, by the assistance of *geometry*, the height of the atmosphere has been determined. Here also *mathematicians* consider the different pressures, resistances, and celerities of solids in fluids; from whence they explain

many appearances of nature that are unintelligible to those who are ignorant of *geometry*.

In the *animal kingdom*, we see the brightest strokes of divine mechanics: and whether we consider the *animal œconomy* in general, either in the internal motion, and circulation of the juices, forced through the several canals by the motion of the heart, or their external motions, and the instruments with which these are performed, we must reduce them to mechanical rules, and confess the necessity of the knowledge of mechanics, either to understand them ourselves, or to explain them to others. But, if we consider not only the *animal œconomy* in general, but, also the wonderful structure of the different sorts of animals, according to the different purposes for which they were designed, the various elements they inhabit, the several ways of procuring their nourishment, and propagating their kind, the different enemies they struggle with, and the accidents they are subject to, here is still a greater need of *geometry*.

As to the two other kingdoms, *mathematics* have been applied to explain the nature of vegetation, to fossils, and other parts of natural history. And, I shall only add, that, if we consider motion, the great instrument of the action of bodies upon one another, its theory is entirely owing to the *geometers*, who have demonstrated its laws, both in hard and elastic bodies; shewed how to measure its quantity, how to compound and resolve the several forces by which bodies are agitated,

tated, and to determine the lines which those compound forces make them describe: of such force is gravity, being the most constant and uniform, that it affords a great variety of useful knowledge, in considering the several motions that happen upon the earth; as

the free descent of heavy bodies, the curve of projectiles, the descent and weight of heavy bodies, when they lie on inclined plains, the theory of the motion of pendulous bodies, &c.

(To be continued.)

We have received the following Answer, only, to Question I. in N^o. I. and this from Mr. DUNN, Accountant and Teacher of the Mathematics in London, who after observing particularly what Dr. WALLIS, Mr. CUNN, and others have done by circulating Numbers, says,

FIRST, in multiplication, let $\frac{N}{D}$ be any vulgar fraction, and $\frac{n}{d}$ another vulgar fraction to be multiplied by the former, and the product will be $\frac{Nn}{Dd}$ exactly, without error.

For example, $\frac{89}{6} \times \frac{65}{3} = \frac{5785}{18} = 321\frac{7}{18} = 321.3888$, whereas, had the decimal of $\frac{89}{6}$ been taken 14.83 and that of $\frac{65}{3} = 21.66$, the product would have been but 321.2178, which is $\frac{1}{6}$ of an unite less than the truth.

To correct this error univerfally, let the vulgar fractions be reduced to decimals, and the remainders preserved.

Thus, in the foregoing example, $\frac{89}{6}$ will be $= 14.83\frac{1}{3}$ and $\frac{65}{3} = 21.66\frac{2}{3}$ the decimal places being continued no farther than is convenient. Putting the whole numbers, and decimal parts, in the multiplicand $= M$, and those in the multiplier $= m$, the fraction in the multiplicand $= F$, and that in the multiplier, $= f$, the exact product (if such be required) will be $Mm + Fm$, $+ fM$, $+ Ff$; but, as in all cases, the error arising by a neglect of Fm and fM , will be very great, with respect to Ff , which will be always less than unity in the least decimal place of the product, we may reject Ff , on account of its smallness, and take $Mm + Fm + fM$ for the product required. In the former example,

$$Mm = 321.2178$$

$$Fm = .0988$$

$$fM = .0722$$

And, 321.3888, &c. the correct product as above.

And thus may all decimal products whatsoever be made quite correct, the multiplicands and multipliers being always derived from forms, like the above, viz.

$$\frac{N}{D} \times \frac{n}{d}$$

Secondly,

Secondly, In Division, let $\frac{n}{d}$ be any vulgar fraction, and $\frac{N}{D}$ another vulgar fraction to be divided by the former; and the quotient will be $\frac{Nd}{Dn}$ exactly, without error, or $\frac{N}{D} \times \frac{d}{n}$, or $\frac{d}{D} \times \frac{N}{n}$. Thus in the foregoing example $\frac{89}{6}$) $\frac{5785}{18}$ ($= \frac{34710}{1602} = \frac{65^*}{3} = 21\frac{2}{3}$, Or, by the first of our foregoing forms, the quotient will be $\frac{5785}{18} \times \frac{6}{89}$. Here $\frac{N}{D} = \frac{5785}{18} = 321.38\frac{8}{9}$, $\frac{d}{n} = .06\frac{66}{89}$.

Hence $M_m = 19.2828$

$F_m = .0005$

$fM = 2.3832$

And $21.6666 = 21\frac{2}{3}$ the correct quotient as above.

And thus may all decimal quotients whatsoever be made quite correct, the dividends and divisors being always derived from forms like the above, viz.

$$\frac{N}{D} \times \frac{d}{n}, \text{ or } \frac{d}{D} \times \frac{N}{n}.$$

These cases and methods of correction I invented, several years ago, for correcting the decimals in long and accurate calculations, in which I have often found them more ready and useful than the method of circulates, and accordingly recommend them to the arithmetician.

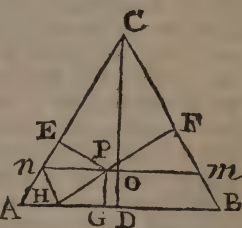
Threadneedle-street,

13 March, 1755.

QUESTION 2. Answer'd by M***.

IN an equilateral triangle ABC, let P be a point taken, and PF, PE, and PG, perpendiculars to the several sides.

Thro' P, parallel to any side (AB), draw mn , which bisect in O with the perpendicular CD. In FP produced, take $PH = PE$, and join HN . 'Tis evident that the angle PHn will be a right angle, and consequently that $FH = PF + PE = CO =$ height of the equilateral triangle mn ; and if to these, $PG = OD$ be added, we shall have $PF + PE + PG = CD$.



Q. E. D.

An Answer to the anatomical Question in the last MAGAZINE.

IN relation to the question before us, it may be answered in general, that the blood returns to the heart, after an amputation, in the same manner, as it did before.

It is presumed, the gentleman's difficulty, who proposed this question, arose from his supposing, that the arteries pass on to the extremities of the limbs, before they communicate with

G 2

the

* See vulgar fractions in this magazine.

the returning veins. Upon this supposition, indeed, after an amputation has been performed, whatever blood might be brought to the stump by the arteries; it is certain, none of it could be carried back again to the heart; because the intercourse between the arteries and veins, in the remaining part of the limb, would in this case be entirely cut off.

But, contrary to the foregoing supposition, it is well known, to such as have been conversant in anatomical dissections, that, from the sides of the larger arteries, as they pass on to the extremities, there go off a great number of lesser branches, which constantly communicate with correspondent branches of the returning veins. And hence, it is easy to conceive, how the circulation is carried on, after an amputation has been performed.

Suppose, for instance, an amputation to be performed above the knee, and let us see how the circulation is carried on in the remaining part of the limb.

The blood, we know, is brought to the thigh, by the crural artery, which a little below the ham is divided into two principal branches, which distribute the blood all over the leg and foot. The blood, thus distributed, is returned by the crural vein into the inferior trunk of the *vena cava*, and so back again to the heart. But, before the crural artery arrives at the ham, it sends off a great number of lateral branches to the muscles of the thigh, and the surrounding teguments; as well for the nourishment of the limb, as to supply a quantity of blood, sufficient for the performance of muscular motion. These arterial branches, every-where communicate with correspondent venal branches, which arise from, and empty themselves into the crural vein. And thus, by means of these collateral blood-vessels, the circulation is regularly carried on, through every particular part of the

limb; the main trunks of the crural artery and vein, serving to convey the blood into, and receive it from these lesser branches.

This then being the case, it is plain, that an amputation, performed above the knee, can no otherwise affect the circulation, than by stopping the progress of that blood, which was about to be sent into the leg. In the mean time, the course of the blood, through the collateral arteries and veins, will be no ways interrupted by the operation: and therefore, the circulation will be continued through the remaining part of the limb, and the blood returned to the heart, in the same manner, after the amputation, as it did before.

At first, indeed, the impetus of the blood, upon the lateral arteries, will be considerably increased, because, that blood, which used to be sent into the leg, will now be obliged to pass all this way. But this is an effect, that commonly ceases as soon as the digestion of the wound is compleated, after which, the circulation is carried on with the same ease and freedom, as it was before the operation.

Monmouth, March 10, 17

S I R,

I believe the following Answer to the PARADOX, in your last, is right.

J. M. T.

8	1	6
3	5	7
4	9	2

QUESTION 8. By a Correspondent.

GIVEN any fraction; to find the least whole number, which multiplied by the numerator and that product divided by the denominator shall leave no remainder?

The
NYMPHA of an
EPHEMERON FLY
magnified.
B.M.

The
Natural Size



QUESTION 9. By T. L.

GIVEN the altitude of a conical glass 3 inches, and its diameter 4 inches, it being $\frac{1}{4}$ full of liquor; to find the diameter of a round ball, which, being put into the glass, shall raise the liquor to the greatest height?

QUESTION 10. By the same.

GIVEN the length of a cylindrical walking staff 40 inches, and its diameter $\frac{3}{4}$ of an inch; to determine the nearest distance from the hand end, where it will strike a blow equal to that with the farthest end, supposing the centre of motion to be at the hand.

A Description of the EPHEMERON FLY.

THOSE animals, which from time to time, we judge worth a particular description, and a copper-plate, and are common to all places, we shall introduce as we have occasion, as they all belong to a general natural history of the world. And we shall here begin with that most curious of all the insect-tribe, call'd the *Ephemeron-Fly*; which epithet it has on account of its very short period of Life, which is allotted to it in the *fly-state*, viz. but a *small part of a day*. The natural history of this creature has been hitherto very imperfect; but, as we have kept them constantly under our eye, for near two years together; we shall be able to give our readers, a more compleat and satisfactory account of it.

This *fly* is the most beautiful species of the *Gnat-kind*, and undergoes the greatest variety of metamorphoses, or different states of life, perhaps, of any other whatsoever; these are no less than *five*, viz. (1.) The *Ovum*, or egg. (2.) The *Eruca*, worm, or maggot. (3.) The *Crysalis*. (4.) The *Nympha*. And (5.) The *Gnat*, or fly.

The *Gnat* having laid its eggs, they lie in the water for some time, till the warmth of the summer-sun hatches them; and from each is produced a single *Eruca*, or worm, of a red colour, a small size, and in motion always resembling the letter S; for it throws itself forwards constantly in that form. In this state, you see it in ponds and puddles of water, during all the warm months of the summer; for, when the water begins

to be cold, this provident creature begins to make itself a *theca*, or case, with the finest materials of vegetables and earth mix'd, and agglutinated, and in which it abides during the winter-season; in the latter part of which it ceases to be a worm, and is changed into its third, or *crysalis*-state, in which it continues dormant till the spring advances, and, by degrees, is transform'd into a beautiful *Nympha*, or fish-like state, which is exactly represented in the plate. Under this form it continues two or three months, till about the middle and latter end of *May*; from each of these, the *Gnat*, or *fly*, is produced.

We have frequently been entertain'd with observing the manner of this wonderful *metamorphosis*; the *Nympha*, on the day destin'd for its change, appears sluggish and inactive, and about 3 o'clock in the afternoon, becomes nearly motionless; in this state it continues till about 5; when the head of the *Gnat* first begins to appear, gently rising above the surface of the water; after this, the body ascends slowly, and in a position perpendicular, upright, till at length the whole is excluded from the *exuvium* of the *Nympha*; and the new-born *Gnat* falls flat on the surface of the water, and for a few minutes is quite without motion; this process takes up near an hour. The *Gnat* is excluded, full grown, and in a short time begins to move its wings very tenderly, and soon it begins to gather life, (if we may so speak) and at last, rises up on its legs, and flutters its wings; then gently

gently attempts to walk, and soon after to fly; and this being the case with many of them at the same time, they frisk and play about, on the surface of their native waters, for the space of two Hours, when the males and females find each other out, and associate together, for about two hours more; they then pursue their promis-

cuous flighty dance, as before, lay their eggs, and, in a short time, fall down dead, and never move any more; finishing their short period of life, in about five or six hours time; for they generally expire at eleven o'clock, at night. We once, with much care, kept one, (of many we try'd) till about twelve, the next day.

Observations on the Weather, by several Instruments, for the Month of MARCH.

A Philosophical history of the weather, for each past month, we judge, will be very acceptable to the public, as it is equally a matter of utility and curiosity. There is nothing, in which a person is more interested, than the article of *health*, which every one ought to know depends greatly upon a thorough knowledge of the state of the weather; and this, we can by no means acquire, but, by the application of proper instruments, which may faithfully indicate to us, at all times, whatsoever relates to the *weight* of the air; to the heat and cold thereof; to the *moisture and dryness* of it; the *quantities of rain*; the *course of the wind*, &c. which properties of the air, being known for the month past, makes it easy to judge what it is, and will be for the present month; and consequently we are thereby the better prepar'd to guard against those disorders, that we observed most rife and predominant at any particular season, or temperature of the air.

In order to this, we shall lend the best assistance we can, by careful observations made every day, at noon, on the following instruments, *viz.*

I. The BAROMETER, which shews the *weight of the atmosphere*, from time to time.

II. The THERMOMETER, which shews the *temperature* with respect to heat and cold.

III. The HYGROMETER constantly shewing the *moisture and dryness* of the air.

IV. The PLUVIAMETER, which shews the *quantity of rain* falling on a given space, in a given time.

V. The ANEMOSCOPE shewing the *direction, velocity, and force of the wind*.

Of these, we have already constructed some; and the rest will follow in time. The observations on the *Barometer, Thermometer, and Pluviometer*, you have in the table below; to which, in the next number, we shall add, the *Hygrometer*, and *Anemoscope*.

March	Barometer	Thermometer	Pluviometer
1	29 : 5	19	0 : 0
2	29 : 8	20	0 : 3
3	29 : 7	23	13 : 0
4	29 : 7	23	4 : 6
5	29 : 3	23	0 : 9
6	28 : 7	22 $\frac{1}{2}$	6 : 0
7	29 : 1	20	10 : 8
8	29 : 5	18	2 : 4
9	29 : 7	18 $\frac{1}{2}$	16 : 7
10	29 : 7	18 $\frac{3}{4}$	3 : 8
11	29 : 6	19	0 : 0
12	29 : 0 $\frac{3}{4}$	19	12 : 0
13	29 : 8	19 $\frac{1}{4}$	0 : 0
14	29 : 7	19	0 : 0
15	29 : 5 $\frac{3}{4}$	19 $\frac{1}{2}$	0 : 0
16	29 : 4 $\frac{3}{4}$	20	5 : 4
17	29 : 5 $\frac{3}{4}$	21 $\frac{1}{2}$	2 : 1
18	29 : 7 $\frac{1}{2}$	19 $\frac{3}{4}$	0 : 2
19	29 : 8 $\frac{1}{4}$	18 $\frac{3}{4}$	0 : 0
20	29 : 8	19	0 : 0

The COPERNICAN SYSTEM. By SAM. EDWARDS. A. B.

ASSIST, *Urania*, the advent'rous song,
That from the tow'ry height of heav'n
doft view

Unchang'd rotations, and harmonious spheres;
By thee, th' inspir'd *Chaldean* first observ'd
The various motions of the shining stars,
And mark'd the rising or the setting Sun,
Whether in *Aries*, or in *Libra*, seen,
His course performing thro' th' *Æthereal*
space

By twelve conspicuous signs well known,
that shew

The utmost margin of his rapid sway :
In ancient times fo thought : but now the
Sun

Fix'd in the center of six orbits glows,
Light'ning six planets that around him roll ;
Fix'd, as o'er *Gibeon* once when still he stood,
Or as the Moon in lowly *Ajalon*,
When *Joshua's* mighty arm destroy'd the foes
Of *Israel*, and *Jehovah*, *Israel's* Lord :
Hence light and Heat imparting all around,
(Diffusive fountain both of light and heat)
And vegetative force to all extends,
From glowing *Mercury* to *Saturn's* frozen orb.

Say, *Muse*, for well thou know'ft, what
planet first

The Sun surrounding, takes its ambient
course ;

Swift *Merc'ry* feels the first the burning Sun,
That erst in Air us'd unconfin'd to rove,
The nimble-footed messenger of heaven ;
Now close confin'd, a narrower limit knows
In fiery regions, and the blaze of day :
Dark with excessive lustre, seldom seen
By eyes on earth, but when th' all-seeing Sun
Hid and eclips'd by th' intervening Moon
Unwillingly is lost ; 'tis only then,
Thou *Mercury* art visible on Earth.

Swift is his motion, as the tract not large,
That moving in his *Circlet* he describes,
For in the space of three revolving moons
His journey finish'd, he again renews.

To thee, O *Venus*, next, I tune my song,
As next in order plac'd, so next in light ;
Goddeffs of pleasing and of soft desire,
That on the *Paphian* and the *Cyprian* groves
With influ'ence sweet look'ft down, thy pa-
rent seas

Behold rejoicing, when thy shining lamp
Ascending, or descending, cuts its way :
Whether thou'rt *Hesperus*, or *Phosph'rus* call'd,
Now th' evening's grace, and now the
morning's pride ;
For if at setting Sun thy orb we view,
When doubtful twilight overshades the face
Of heaven and earth, thou *Hesperus* deign'ft
to hear ;

But if at morn we spy thy glimmering rays,
'Tis then thou'rt chang'd, another and the
same ;

Bright *Phosphor* hail ! — to watchful shep-
herds known,

That in the meadows tend their fleecy care,
Greeting the day with merry pipe and glee.

Nor does the Moon alone her figure change,
Ev'n thou art mutable, alike thy form,
Horn'd, or *full orb'd*, at diff'rent times ap-
pears ;

Transported at the sight, old *Vulcan* smiles,
In air to see thee by those signs adorn'd,
Which he on earth, for thee contented bore.
Bright as thou art, and cloath'd in lucent
beams,

Yet when in close conjunction with the Sun,
A spot in his resplendent *Disc* thou'rt seen,
And deck'ft his cheeks, as *Daphne* once his
brows :

But oh ! more kind, for never in thy round
In point of opposition art thou seen.

Next rolls this *Earthly Ball*, the seat of
man,

Obliquely cutting its ætherial course
Thro' twelve bright constellations ; that adorn
Heav'n's azure vault, unalterably fix'd.

First in his golden fleece the *Ram* leads on
With wonder and astonishment the *Bull* ;
Fierce, as when once a God he stemm'd the
sea,

Bearing his lovely burden thro' the waves,
Secure of tempest : but not so *Leander*,
Prosp'rous, attain'd the long wish'd *Sessian*
shore.

Then next advance the *Twins*, and then
the *Crab*,

The brindl'd *Lyan*, and the blushing *Virgin*,
And *Libra* next, that weighs in equal scales
Day answ'ring night in length, and night
the day.

The *Scorpion* now succeeds, a fiery star
Stretching amain his formidable claws ;
Whence *Cæsar* kens the votive world below,
If *Cæsar* haply shines a star on high,
And sheds sweet influ'ence down on thee, O
Rome.

The hideous *Archer* next with full-bent
bow,

Half man, half beast, a monster terrible,
As e'er was feign'd to guard th' æthereal
plains.

Then bearded *Capricorn* attracts our view,
Looking with wishful eyes upon the *Urn*,
Gushing with fluent streams, as many a
Goat

On craggy mountains top in ancient *Wales*,
Or from the *Wrecking's* vast stupendous
height

Looks down upon the *Severn's* silver streams,
Laving the flow'ry Banks of fruitful *Salop*.

The wint'ry *Fishes* close the heav'nly rear,
Their station 'tween *Aquarius* and the *Ram*.
Lo !

Lo! these the signs of days, of months,
and years;
For when, thro' twelve bright constellations,
Earth

Unweary'd hath her radiant journey run;
From whence it first set out, it takes its course.
Times also and their seasons well they note;
For when the Sun in fleecy *Aries* sets,
The fresh returning spring, the heart of man
And beast rejoices, with new vigour fraught,
Pleas'd to behold the captivating scene,
When new-sprung glories ravish ev'ry eye,
And sweet variety adorns the meads,
Oh! then how pleasurable 'tis to rove
On banks of *Cam*, or *Isis*, fam'd in song,
To meditate the great *Creator's* praise;
Who in his works so manifest is seen,
As far as nature can her Author paint!

But when th' exalted Sun in *Cancer* rides,
Excessive heats ensue; 'tis then the plains
Parch'd, and divided into many a crack,
Gape and invoke the long suspended show'rs;
Deep-sounding thunders roll, while from
the clouds

The long imprison'd vapours burst their way,
And the red light'nings dart their dreadful
gleams,

Making day hideous: — Round the grazing
beasts

Fly trembling, and their dark recesses seek.

When equal *Libra* next brings forth the
day,

And raging *Sirius* fierce at midnight glares,
Presaging storms, and pestilence, and death;
Then frequent fun'ral's in long order shine,
And add a double horror to the night;
And wider would extend their dreary doom,
But for the cheerful gift of that kind God,
That loads with clust'ring grapes the bend-
ing vines.

But when *Aquarius* sheds its humid in-
fluence,

Dark mists the trav'ler feels; — But stay,
my *Muse*,

Urge not a theme already so well sung,
Smooth, as the ice, they sing, thy numbers
flow,

* *Great Bard* we quake, and shudder at thy
frost:

O! may they never, who despise thy *Muse*,
Alive or dead, be by thy *Muse* adorn'd.

Nor shall the *Earth's* attendant pass un-
sung,

Sole arbitress of night, the pale-ey'd *Moon*,
Constant in her inconstancy; 'tis she
Can raise or can depress the boist'rous ocean,
In *Zenith* tow'ring, or in *Nadir* low:

Oft at thy pallid glimpse the *fairy elves*,
With nimble feet, the circling dance perform
In some thick grove, or round a mossy spring;
Sipping from acorn cups the pearly dews,

And midnight revels celebrate with joy
To *Mab* their queen, and *Oberon* their king.

Oh! thou the most irregular of all
The planets, that describe their sloping way,
Why is thy course protracted long and large,
What time the jolly huntsman's cries resound?
Is't to behold thy lov'd *Endymion's* face,
That oft' was wont in forests wild and wide,
To chase the scudding hare, or trembling
deer.

O'er many a rising hill or lowly dale?
Him to revisit oft thy silver sphere
(So poets sing) in heav'n forsaken stood.

Nor does the *Moon* uncertain warning give
Of future Storms; for if a reddish hue
Its full orb'd disk o'er spreads, then storms
expect

And tempests yet to come, to vex the main
With rage impetuous; who then would
choose

Way-ward abroad companionless to rove,
Thro' dreary deserts and unpeopl'd plains?

Nor equal always is thy lustre seen,
For dim suffusion oft' and dusky shade,
From earth projected, intercepts thy light,
Whole, or in part eclips'd; in vain the sound
Of tinkling cymbals, and the direful clang
Of brazen cauldrons, rung by vulgar hands,
Thy labours thus attempt to mitigate.

Next fiery *Mars*, whose dreadful sport is
war,

Ascending terrible shoots forth his rays
That led th' imbattl'd deities to fight;
Now unattended ships: for no fair moon
By night his sphere adorns, but fierce his
look,

Fierce, as when once he rag'd at *Ilium's* walls
When struck by *Diomed's* advent'rous arm:
But oh! what luckless fate, what chance of
war,

Great *Hero*, led thee in ill-fated hour,
With erring lance to wound fair beauty's
queen.

Majestic next, and slow in awful state,
Rolls *Jupiter* immense; an equal bulk
Of all the wand'ring planets none can boast;
Attended in his course by four bright moons,
That faithful lend their well accepted light.
Thus equal, nature in her works decreed,
By Moons to aid a twelve years winter's
frost:

Nor summers there, if summers there be
known,

Refuse th' assistance of those grateful lights.

Nor do thy *Moons* alone our wonder raise,
When curious we behold thy many *Belts*
That gird thy spacious body round and large,
Form'd from thick vapours or eruption dire;
Or was't from hence thy flaming light'nings
flew,

Drawn to transfix the rash *Titanian* race

That

That with presumptuous arms provok'd thy
pow'r,
O'er mountains heap'd on mountains, when
they strove

Thy empire to dispute in impious war.

Next then—but a long interval between,

Behold we tardy *Saturn's* livid face,

In distance far remote; the *solar rays*

Scarce chear with light his unrejoicing orb;

But for five moons, that in alternate dance

Around him as their center circling move,

Darkness intense would overspread his face.

Nor mean the light, that from thy lucent ring

Pow'rful reflected on thy surface shines,

That now a *gilt horizon* round thee seems,

Like to that light at close or dawn of day

When seen on earth; now a resplendent arch

'Midst heav'n's extended plains, like that

fair bow,

Conspicuous in the clouds, prefaging calms.

Our labour now the direful *Comets* urge,

Glaring tremendous thro' the vast expanse,

Threat'ning destruction and the wrecks of

worlds;

But that strict bounds direct and guide their

course,

Set, when th' *Almighty* in creating hour

From chaos call'd the glorious universe,

And fix'd the stars, and bid the planets move.

Where *Aether's* space immense eludes our

view,

And Planets in their orbs in order range,

There free, as air, the fiery comets rove,

And direful orbs their rapid course extends.

Nor are their ways confus'd, or intricate,

Irregular in winding mazes lost,

Eccentric error constant to itself,

To one law subject, one unerring rule

Of *force attractive*; thus unwearied they

Now sweep the utmost confines of the world,

Now basking in the neighb'rhoo of the sun;

Then swiftly flying his too piercing heat,

Rejoicing, they ascend their labours to re-

sume.

Long tracts of light attend their dreadful

course,

But trust not to thy view a *foreign* light,

And spurious Honours deck their glowing

mas;

Dense atmospheres emit their furtive beams,

Frequent and thick, by heat intense exhal'd:

The moon thus, with fraternal lustre bright,

Darts borrow'd rays, and glories not her

own.

There are, that fate foretelling fires believe,

And conscious stars t' inspect the acts of men,
And threaten bloody wars from distant climes
to come.

Hence stupid and amaz'd, the vulgar fear,
And scepter'd monarchs tremble on their
thrones;

Then happy he, who with his virtue arm'd,

Unterrify'd amidst the crush of worlds,

Meets willingly his long expected fate.

But oh! ye lights, and influencing stars,

Where then was fled your efficacious pow'r,

When tower'd *NEWTON's* eyes were

close'd in death,

Or were ye bent his presence to obtain,

To whom on earth so well your ways were

known?

Hail! glorious shade, in ancient times

foretold

* By *Sage* prophetic; thou th' illustrious he

Destined to grace a new *Augustan* age;

But when th' archangel's latest trump shall

found,

And riven orbs destruction dire confess,

Then shall thy system fail, and nature's face

Renew'd in everlasting lustre shine.

Then *death* shall conquer *death*, the dreary

tomb

Shall send forth glories that shall never fade.

The *damn'd* shall mourn the funeral of *death*,

And life, not *death*, of sin the wages be.

Frauds dark as night, and civil discords

brood,

When stars ev'n blush at what is done below;

For ne'er in heav'n more frequent fires were

seen,

Than when the blood of *Cæsar* tinctur'd

Rome,

Nor dost thou, *Rome*, alone the slaughter

weep

Of fathers, children, brothers, husbands,

wives,

Ev'n *Albion* once in grief could vie with thee,

When *Albion's* sons, 'gainst *Albion's* sons a-

rose.

But cease intestine broils; so *GEORGE*

commands,

And whet your shining instruments of war,

Employ'd much better on *Iberian* plains;

And teach the treach'rous soul in war to

know

The just repentment of a peace refus'd,

Of violated leagues, and broken faith:

Asraa shall return to bless our isle,

And a new *ATHENS* in *BRITANNIA* rise.

* Seneca.

PSALM LXXIII. *Imitated.*

IT must be so:—for God is good to those,
Who, pure of heart, their trust in him re-
pose;

Yet, late I rovd' astray, perplex'd and blind,

For clouds of error hover'd o'er my mind:

I griev'd, I envied, to see fortune's tide

Flow on the sons of wickedness and pride:

Firm is their strength, not subject to decay;

With age alone, their vigour dies away:

H

The

The cares, the toils of life they seldom share;
Slight are their troubles, their afflictions rare:
How smooth their brow! their eye, how full
of fire!

While luxury of wealth, exceeds desire. —
Minions of fortune! see the gaudy train,
Oppressive, cruel, haughty and prophane;
Corrupt of soul, licentious they speak,
Defraud the poor, and persecute the meek.
Their impious tongues, with daring elo-

quence,
Attack the sacred ways of Providence.
Fearless they ask, "Does the Almighty know?
"Where are the traces of his Care below?
"Who are his fav'rites? can the sages tell,
"And point us out a local heav'n, or hell?"
Behold, O God, these prosp'rous sons of vice,
Who pass their days in riot and caprice.
Abash'd, I cry'd, my heart, I've purg'd in
vain,

And to no purpose, wash'd off every stain:
Cautious I walk, dejected and forlorn,
Plagu'd every eve, and chasten'd every morn:
Adversity, the manna thou let'st fall,

And in my cup, the wormwood's mix'd with
gall.

O! let me speak these truths; for, speak I must,
Without offending the supreme and just!
How my heart labours with the painful
thought,

Too exquisite in language to be wrought! —
But when I in thy sanctuary bow,
With full conviction, I their danger know;
Dreadful the precipice on which they stand!
For dire destruction waits on either hand:
I view their end with horror and amaze;
Their life a vapour, and their wit a blaze. —
As from a dream, hereafter they must 'wake,
When thou, O God, shalt inquisition make,
Give vice its anguish, virtue its delight,
Prove thy ways equal, and thy judgments
right.

While thro' this vale I tread, thy presence
chears,

Thy hand supports, and mitigates my fears;
Thou wilt hereafter, tho' on earth distressed,
Lead me to glory, and eternal rest.

CRITO.

*We have been obliged to make many corrections in the above, which otherwise would not have
served our purpose.*

CROSS PURPOSES. A SONG.

PALÆMON lov'd *Pastora*,
Pastora sigh'd for *Damon*;
But *Damon* lov'd *Aurora*,
Aurora young *Palæmon*.

Palæmon gave *Pastora*,
A wreath and shepherd's crook;
And *Damon* gave *Aurora*
A knot and reaping-hook.

Pastora gave to *Damon*,
A cap with chaplets crown'd;
Aurora gave *Palæmon*,
A pipe with hazel bound.

The cap with chaplets crown'd,
Young *Damon* gave *Aurora*;
The pipe with hazel bound,
Palæmon gave *Pastora*.

The wreath and shepherd's crook,
Pastora gave her *Damon*;
The knot and reaping-hook,
Aurora gave *Palæmon*.

So crossly-turn'd, their presents went,
Their Love's so oddly varied,
That every token that was sent,
Its true design miscarried.

The STATUARY on NEWGATE.

ON the outside of *Newgate* stand fair to
be seen,
Justice, Liberty, Mercy, Truth, Plenty
and Peace;

What a happy reverse would it be, if within
We could see, such a train of bright vir-
tues as these?

In mis'ry no more would the wretched ca-
rouse,

Nor the flames of dame *Gin* in their bo-
soms more high-burn;

No more need a windmill a'top oth' house,
Nor weddings, immortal, consummate at
Tyburn.

PROLOGUE TO APPIUS.

Spoken by Mr. CIBBER.

HOW great the poet's task, who, new to
fame,
Seeks by the drama to procure a name! —
The muse's mighty labour at an end,
Friends he must have; — to judge, to recom-
mend. —

Few care to judge. What the best judges feel,
Ev'n they, thro' modest diffidence conceal. —
Witlings and critics, of a bastard kind,
See faults indeed; but are to beauties blind.
Such, keen to nibble at a word or phrase,
Resign to men of sense the task of praise. —

Some

Some—rising merit, from its dawn, oppose:
To such, a rival is the worst of foes.—
'Twere endless, it were needless to relate
The well-known hardships of an author's
fate.

Each hardship, ev'ry obstacle surpast,
Virginius comes upon the stage at last:
That father comes, whose dire, whose mourn-
ful deed
Rome from the bloody yoke of *Appius* freed.

For this his name was to his country dear.—
What drew the *Roman*, claims the *British* tear.
Our author hopes slight errors you'll excuse;
Since who could ever boast a faultless muse?
His *Roman* subject, with attention due,
With candour treated, he submits to you.
To your high judgment he submits his cause;
Alike resign'd to censure or applause.—
Britons! your native equity display,
And judge, like *Romans*, of what *Romans*
say.

EPILOGUE TO APPIUS.

Written by a FRIEND.

Spoken by Mrs. BELLAMY.

I Told the bard—(ay, yonder he stands
quaking,
Alas! poor soul, he's in a piteous taking!)
I hope, sir, you'll excuse what I shall say:—
But truly, sir, I tremble for your play.
There's a wild greatness in the plot, I own:
But then, I doubt, it may displease the town.—
“The town (reply'd our author) disapprove
“A plot that's built on liberty and love?
“Is not the fav'rite character a woman?
“The moral chaste and pure? The subject
Roman?”
Roman indeed!—I hope such heath'nish
nonsense
Will ne'er infect an honest *Christian* con-
science.—
The story may (for aught I know) be true:
But *here* no tale improbable will do.—
What, rather perish by untimely fate,
Than smile upon a princely magistrate!
So rash, he could not reign another year;
So rich, she might have had ten thousand
clear!
And then what wife *Plebeian* would decline
A match with the *Decemvir*'s concubine?—
“How (says a critic) quit her faithful lover,
“Young, handsome, brave, for such a wic-
ed rover?

“For one—(a thousand other faults com-
bining)—
“That now was to the vale of years declin-
ing?—
So then, had *Appius* been but five and
twenty,
The maid perhaps would not have prov'd so
dainty.—
ICILIUS vow'd indeed, and promis'd
well:
But where was he when his *VIRGINIA*
fell?
He should have screen'd from death his
blooming bride;
Or dy'd,—like a true lover,—by her side.—
VIRGINIA's death he never could survive;
But that he was, in duty,—bound to live.—
He liv'd then, to dissolve his country's chain;
Avenge his mistress, and—make love again.
Then for the grim old fire, with frenzy
wild,
To be the butcher of his only child!—
True, 'twas the virgin daughter's choice to
die,
Rather than bear to live with infamy.—
This must be *Roman*, *English*, or romance:—
Such virtue would not be believ'd in *France*.

Whereas, several of our friends, have been solicitous about the continuation of this work, and its being compleated in the time propos'd in our plan; we here beg leave, to assure them, the work is in so great forwardness in every part already, and, will be still further advanced, by a daily application thereto, that, in all human probability, there will be no occasion to fear its being discontinued; especially, as we have received so great encouragement from a general Reception of the work, we shall be thereby animated, not only to pursue it, but also, to improve, and enrich our plan far beyond what we at first propos'd. Besides, it ought to be considered, that, from the nature of such a work, it must be compleat, as far as it goes, let it terminate where it will; since, the subjects in every part, are independent of each other, and, each one in particular, is finish'd, in a few numbers. In the last place, as we write only for the ingenious, and ingenuous, 'tis presumed, none of our readers can set any part of science at so low an estimation, as to think any particular number not worth the few pence he gives in exchange for it.

ERRATA in our last. Page 22, Line 6, 8, 11, 18, 19, 26, for I read s.

A CHRONOLOGICAL MEMOIR of Occurrences.

For MARCH, 1755.

Turkey.

THE new grand signior, who seems to do every thing in his power to gain the affections of his people, has ordered the duty on corn to be taken off.

The bashbacha Kouli is changed and exiled. He is the second officer in the testerdarat, or treasury, and properly the chief cashier. Other changes are said to be expected.

Genoa. Letters from Bastia, of the 6th of February last, mention, that the inhabitants had been kept under arms all the 21st and 22d of the month then last past; the chiefs of the malecontents having laid a plan to surprize the city, under pretence of levying a general tax of one livre on each family, on the whole island. The rebels marched a corps of about 1000 men, secretly, in the night, near to the city, to levy the tax on the inhabitants in the suburbs. This was reported to conceal their true design, which was to surprize the old town, called Terra Vecchia, and, if it had succeeded, was to have attempted scaling the wall of the new town, called Terra Nuova. — It is not certain what could encourage them to make this attempt, only it is conjectured, that they were to be joined by some deserters; but finding the inhabitants under arms, they retired without doing any thing at all.

Sweden. Several conferences have lately been held at Stockholm between the French and Spanish ambassadors, and the ministers of this court, in relation (as 'tis said) to a contract for building some men of war, and other ships for the service of those crowns.

Spain. We are informed that the Conception sailed from Cadiz on the 21st of last month for Vera Cruz, and that several other ships are getting ready in that port for Carthagena and the South Sea.

Portugal. The fleet bound for Rio de Janeiro, consisting of 29 ships, under the convoy of a man of war, of 50 guns, sail'd

from Lisbon, a few days ago, with a fair wind. Two others, embrac'd the opportunity of sailing with them, one bound for Angola, and the other for Mazagnan.

United Provinces. The States open'd their assembly, on February the 26th, and the college of the committee of Council, having, with the approbation of her royal highness, the princess Governante, appointed the sieur Enekuysen, to have the principal direction of their Foundry of Cannon, he was accordingly sworn into that office, on the 24th of February, before their High-mightinesses.

On February the 25th, the college of the admiralty of Amsterdam, put three men of war into commission: and, on the 26th of the same month, the states of Holland, and West-Friesland, open'd their assembly. On the same day, the marquiss de Grimaldi, the Spanish ambassador to their High-mightinesses, arriv'd at the Hague, with a numerous retinue.

PLANTATION NEWS.

March 1. They write from *Philadelphia*, of the 12th of Dec. last, that the assembly had that day ordered a bill to be prepared for granting 20,000*l.* for the king's use.

Also unanimously resolved, to defray the charges of those Indians, who have removed from the Ohio, and rejected the offers of the French.

Letters from America advise, that the people of Carolina are apprehensive of the French falling into that colony from the Mobile and Alibamus rivers.

March 4. We learn from *Philadelphia*, of the 31st of Dec. that on the Friday before came to town several French deserters, who assured, that, in the month of June last, there arrived at Quebec, in Canada, six men of war with several thousands of land forces; many of whom are now at the Ohio, where the French are strengthening themselves with the utmost application.

L O N D O N.

Mar. 6. EARL Paulet resigned his place of first lord of the bedchamber.

March 8. His grace the duke of Marlborough took the sacrament at St. Andrew's church, to qualify himself for Lord Privy Seal.

11. Lord Cathcart appointed commissioner to the general assembly at Edinburgh, in the room of the earl of Leven deceased.

13. A fire broke out in the tarring-house of his majesty's dock-yard at Plymouth. Admiral Mostyn alarmed the harbour, and

by the assistance of the ship's crews, and the workmen in the yard, it was happily extinguished.

15. The united East-India company entered at the Custom-house, 390,000 ounces of silver coin for their factories abroad.

19. A large quantity of money was shipped from the Tower for America.

20. His majesty went to the house of peers, and, among others, gave the royal assent to the following bills, viz.

For

For vesting Montague-house in trustees, for the British Museum, for a general repository.—For preventing the holding of any market in the High-street in the Borough of Southwark.—For establishing a Ferry across the Thames, from Ratcliff to Rotherhithe.—For enlightening the streets, &c. of

St. Bartholomew the Great, in the City of London.—For enlightening the streets, establishing a watch, &c. in the city of Bristol, And, likewise for allowing further time for the enrollment of deeds and wills made by Papists.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane.

- Feb 20. *The Fairies.*
 22. *Measure for measure.* — Proteus.
 24. *The Fairies.*
 25. *Creusa.* — Lethe.
 27. *Measure for Measure.* — Proteus.
 Mar. 1. *Creusa.* — Duke and no Duke.
 3. *The Fairies.*
 4. *King Lear.*
 6. *Macbeth.* — Anatomist.
 8. *Phædra and Hippolitus.* — Proteus.
 10. *The Fairies.*
 11. *King Lear.* — Lying Valet.
 12. *Abel.* — An Oratorio.
 13. *The Mistake.* — Englishman in Paris.
 14. *Abel.* An Oratorio.
 15. *Venice preserv'd.* — Intriguing chambermaid.
 17. *Every man in his humour.* — London Prentice.
 18. *Tancred.* — Lethe.
 19. *Alfred.* An Oratorio.

Covent-Garden.

- The mourning Bride.* — Orpheus.
Mourning Bride. — Orpheus.
The Earl of Essex.
The Rehearsal. — Orpheus.
The Earl of Essex. — Orpheus.
The mourning Bride. — Orpheus.
Hamlet. — Orpheus.
The Way of the World. — Orpheus.
Appius. A new Tragedy.
Appius.
Appius.
Appius.
Judas Maccabæus. An Oratorio.
Appius. — Orpheus.
Judas Maccabæus. An Oratorio.
Appius.
The Constant Couple. — Scapin.
Alzira. — and Taste.
Messiah. An Oratorio.

BIRTHS.

- Feb. 22. The lady of the right hon. the lord Abergavenny, deliver'd of a son and heir.
 24. The right hon. the lady viscountess Parker, deliver'd of a son and heir.

MARRIAGES.

- Feb. 17. The hon. Mr. Bateman, brother to the right hon. lord viscount Bateman, and nephew to his grace the duke of Marlborough, to miss Hedges.

18. Captain Barragon, of general Wolf's regiment, to miss Fassel.

24. Mr. Thomas Pilcher, purser of his majesty's ship, the Prince, to miss Towler, a lady of great fortune.

- March 5. Isaac Buxton, oil-merchant, to miss Fowell.

6. George Tasburgh, Esq; of Norfolk, to the hon. miss Teresa Gage, a lady of 20,000 l. fortune.

13. Captain Matthew Floyer, to miss Wightwick.

DEATHS.

- Feb. 19. Mr. Eenham, one of the commissioners of the court of requests.

- Mr. Pegg, another commissioner of the same court,

21. Her grace, the dutchess of Manchester. John Flower, Esq.

22. Maurice Johnson, Esq; of Lincolnshire, counsellor at law.

23. John Bance, Esq; formerly a director of the East India company, and since, one of the directors of the bank of England.

24. Mrs. Ann Buck, a widow lady of great fortune.

- Lady Bridget Williams, widow of the late rev. Mr. Williams, one of the daughters of the duke of Ancafter.

25. Aaron Levi, many years, keeper of Woodstreet compter.

26. Mrs. Lethiullier, lady of William Lethiullier, Esq; one of the daughters of sir John Tash.

- March 1. Dr. George Paul, his majesty's advocate gen. &c. &c.

3. The rev. Mr. Ralph, rector of Ingateston, Essex.

6. Dr. Mangey, golden prebend of Durham, and rector of St. Midreds, Breadstreet.

7. The right rev. Dr. Thomas Wilson, bishop of Sodor and Man.

13. Francis Manning, Esq; formerly resident at Bern. Civil

Civil and Military Preferments.

March. 2. Earl of Rochford, appointed by his Majesty, groom of the Stole, in the room of the late hon. Earle of Albemarle.

8. Francis Atkinson, of Lancaster, Esq; appointed one of the masters extraordinary of the high court of Chancery.

March 18. The King has been pleased to constitute and appoint.

John Murray, Esq; commonly called, John Lord Murray — The right hon. John Earl Loudoun — Maurice Bockland, Esq; — The right hon. William, Earl of Penmure — George Beaucherk, Esq; commonly call'd, Lord George Beaucherk — William Herbert, Esq; — George Sackville, Esq; commonly called, Lord George Sackville — Wm. Kerr, Esq; commonly called, Earl of Ancram — William Stanhope, Esq; commonly called, Lord Viscount Peterham — Hugh Warburton, Esq; — William Shirley, Esq; — Sir Wm. Pepperel, Bart. — His grace, John duke of Bedford — Cuthbert Ellison, Esq; — His grace Peregrine, duke of Ancafter — His grace Evelyn, duke of Kingston — John Manners, Esq; commonly called, Marquiss of Granby — The right hon. George, Earl of Cholmondeley — The right hon. George Dunk, Earl of Halifax — The right hon. Hugh, viscount Falmouth — The right hon. Simon, earl of Harcourt — The right hon. Henry Authur, earl of Powys — The right hon. Richard lord Edgcombe — The right hon. John, earl of Sandwich — The right hon. William earl of Home — To be major generals of all his majesty's forces.

ECCLESIASTICAL PREFERMENTS.

The rev. John Sampson, M. A. appointed domestic chaplain to the right hon. Harry duke of Bolton.

The rev. Hen. Gower presented to the rectory of St. Mary, in the isle of Ely.

The rev. Henry Harcourt, appointed domestic chaplain to the right hon. Simon, earl of Harcourt, one of his majesty's hon. privy council.

The rev. mr. Jeffries, to the vicarage of Ringland in Norfolk.

The rev. mr. Zac. Sugar, M. A. appointed domestic chaplain to the right hon. dukes dowager of Gordon, Scotland.

The rev. Richard Hawkins, B. L. to the rectory of Newton Bushel, in Shropshire.

The rev. mr. Samuel How, appointed domestic chaplain to the right hon. Anne, countess dowager of Albemarle.

The rev. Sam. Richards, M. A. to the rectory of Leuden, Pembrokehire.

The rev. Joseph Fox, appointed domestic chaplain to the lord bishop of St. David's.

The rev. mr. Smith, to the rectory of Theydon Mount, Essex.

The rev. Tho. Lane, B. A. to the vicarage

of Broadwater, Lincolnshire, worth 120l. per ann.

The rev. G. Woodward, collated by the lord bishop of Salisbury, to the prebend of Stratton in that church, vacant by the death of Dr. Wynne, late Canon of the said Cathedral.

The rev. John Joyce, B. L. to the rectory of St. Mary, in the diocese of Winchester.

The rev. Wm. Foster, M. A. appointed domestic chaplain to the right hon. earl of Strathmore, in Scotland.

The rev. mr. Moor, chosen head master of the grammar-school at Leeds in Yorkshire.

The rev. mr. Henry Hewgill, to the rectory of Smeaton in Yorkshire.

DISPENSATIONS to hold two livings.

Feb. 19. The rev. mr. Wm. Smith, B. L. presented to the rectory of Stapleford Tawney, Essex; with the rectory of Theydon Mount in the same county, worth 270l. per ann.

The rev. Peter Petit, M. A. to the vicarage of Royston, Hertfordshire; with the vicarage of Sawbridge, in the same county, worth 250l. per annum.

Feb. 24. The rev. Tho. Pickering, M. A. to the rectory of Southchurch, Essex, with the vicarage of Northweald, otherwise Northweald Basset, in the same county, worth upwards of 300l. per ann.

March 8. The rev. Zac. Sugar, M. A. to the rectory of Barnolby Lebeck, Lincolnsh. with the rectory of Hotham, in Yorkshire, worth upwards of 270l. per ann.

March 15. The rev. Tho. Rock, to the rectory of Bitterley in Shropshire, with the vicarage of Tenbury, and chapel of Rochford thereto annexed, in Worcesterhire, worth upwards of 300l. per ann.

The rev. Sam. How to the rectory of West Hanningfield, Essex, and to the rectory of South Hanningfield, in the same county, worth 270l. per annum.

BILL of Mortality from Feb. 18. to Mar. 18.

Buried		Christened	
Males	942	Males	616
Females	922	Females	533
Under 2 years old	636		
Between 2 and 5	150	Buried,	
5 and 10	51	Within the walls	168
10 and 20	46	Without	456
20 and 30	146	Mid. and Surry	814
30 and 40	161	City & Sub. West.	426
40 and 50	200		
50 and 60	172		1864
60 and 70	130		
70 and 80	106	Weekly Feb. 25.	468
80 and 90	59	Mar. 4.	474
90 and 100	7		11. 460
100 and 109	0		18. 462
	1864		1864

B ——— KR ——— TS.

Feb. 25. Jonathan Weston, of Bristol, vint.

Mar. 1. Thomas Lyon, of London, watch-m.

Henry Cooper and Thomas Paine, of London, Hardwaremen.

John Roberts, of Petworth in Suffex, Inn-keeper.

James Graham, of Middle-Row, Holborn, Cheefemonger.

John Roberts, late of Petworth, Innkeeper.

4. Thomas Sayse, of Gloucesterth. malster.

William Garner, of the Old Artillery-Ground, butcher.

James Pointer, of Rotherhith, anchor-smith.

Henry Blaine, of Huntingdon, maltster.

Thomas Church, of Norfolk, upholsterer.

Thomas Farrer, of Norfolk, Linnen-draper.

8. J. Gronous and W. Carter, of Craven-Buildings, taylors.

John Battison, of Nottinghamsh. and Thomas Taylor, late of London, hosiers.

Edward Cleaver, of London, victualler.

11. John Smith and John Russel, of Surry, leather-dressers.

Jacob Valk, of London, merchant.

Nathaniel Studd, of Suffolk, shopkeeper.

Richard Copland, of Norf. worsted-weaver.

15 Joan Dyke, of Taunton, widow, ironm.

18. Edward Long, of Yorkshire, clothier.

William Beammand and Robert Readhead, of Middlesex, taylors.

22. John Berckenhout, of Leeds, merchant.

BOOKS published since our last.

APPIUS, a tragedy. 1s. 6d. Millar. (See p. 26 and 27 in our poetry.

— Tho' it is not our province, neither is it any article of our plan, to take any farther notice of books, or pamphlets, than their titles; yet we shall take the liberty, now and then, as occasion offers, to make our cursory remarks. — And in regard to this play, we hope a short account of the subject-matter, will be thought not improper.

Appius Claudius, the chief character of the play, was the son of *Appius Claudius*, or *Clausus*, who was born at *Regellum*, a city of the *Sabines*, and because he dissuaded his countrymen from entering into a war with the *Romans*, was constrained to retire to *Rome*, where he was received into the number of the senators, and changing his name of *Clausus* into *Claudius*, became the head of the *Claudian* family, which was afterwards remarkably illustrious.

Appius Claudius, here spoken of, had neither the virtues, nor merits of his father; for abandoning himself to his lust, he committed those crimes for which he justly lost both his life and his honour.

Upon the change of the Consular government he was made one of the Decemviri, who had the absolute authority of the Consuls; and during the time he was possessed of that high post, he fell in love with *Virginia*, the daughter of *Lucius Virginius* (a military tribune) related to one *Lucius Icilius*, who had been a tribune of the people; but not being able to accomplish his ends by the fair means of adulations, and rich presents, he suborn'd one *M. Claudius*, to demand the virgin as his fugitive-slave, born in the house of one of his bond-slaves, who had sold her to the wife of *Virginius*.

The suit coming before him, he adjudged *Virginia* to *Claudius*, who carried her away by force; upon which, *Virginius*, seeing his

daughter dragged into captivity, stabbed her to the heart.

These violences occasioned tumults, the effects of which were, that the Decemviri were pulled down, and the Consuls restored.

Appius was accused for his injustice to *Virginius*, and committed to prison, where, for fear of a worse punishment, he was his own executioner, by voluntarily taking a large dose of poison.

Explanation of this years Oxford Almanac, 6d. Crowder.

Ellis's Natural History of Corals, &c. 12s.

6d. few'd. Millar.

— This is a piece, which, we imagine, claims the attention of the curious. And as we shall have occasion in the prosecution of our natural history, to speak of Fossils, it is highly probable, we may take the liberty to transcribe some of it; but then we shall assume no merit to ourselves, from any such extract; but in that, as in all other cases of the like nature, we shall endeavour to do our authors justice, and ingenuously acknowledge to whom we are indebted for our literary amusements.

Fielding's Journal of a voyage to Lisbon, 3s. Millar.

Heister Dr. his medical, chirurgial, and anatomical cases and observations, 11. 1s.

Hitch, &c. 4to.

History of the marquiss Fratteaux, 3s. G. Woodfall.

Letter to the Rev. Tho. Jones, 6d. Collyer.

—— To the author of considerations on the marriage-act, 1s. 6d. Hawkins.

Letters (four) on the study of the Hebrew scriptures, 1s. Withers.

The last blow, or, an unanswerable answer to the vice chancellor of Oxford, Dr. King, &c. 1s. Crowder.

Matrimonial Preceptor, 3s. J. Payne.

Rival Mother, a novel, 6s. Noble.

Miscellaneous Correspondence,

For APRIL, 1755.

The ESSAY on the *Usefulness* of MATHEMATICAL LEARNING, continued
from Page 38 of our last.

The usefulness of *mathematics* in several other arts and sciences, is fully as plain. Every body knows, that *chronology* and *geography* are indispensable preparations for history: a relation of a matter of fact being very imperfect, without the circumstances of time and place. To have a true idea of any city, or country, we ought to know the relation it bears to any other place, its climate, heat, cold, length of days, &c.

Nobody, I think, will question the interest that *mathematics* have in *painting*, *music* and *architecture*. With respect to *painting*, perspective, and the rules of lights and shadows, are owing to *geometry* and *optics*. If *mathematics* had not reduced *music* to a regular system, it had been no art, but enthusiastic rapture, left to the roving fancy of every practitioner. This appears by the extraordinary pains taken by the antients to fit numbers to the three sorts of music, the *diatonic*, *chromatic*, and *enharmonic*: but *music* had been still imperfect, had not arithmetic stepped in once more, and *Guido Aretinus*, by inventing the temperament, and making the fifth false, by a certain determined quantity, taught us to intermix all the three kinds of the antients, to which we owe all the regular and noble harmony of our modern *music*. As for civil architecture, there is hardly any part of *mathematics*, but is some way subservient to it: *geometry* and *arithmetic*, for the due measure of a building; for plans, models, computation of materials, time and charges; for

ordering right its arches and vaults, that they may be both firm and beautiful: *mechanics*, for its strength and firmness, transporting and raising materials; and *optics* for the symmetry and beauty of the whole. It must, however, be owned, that he, that should pretend to *draw*, without any other knowledge of the art, but the geometrical rules of perspective; or compose music merely by his skill in harmonical numbers, would produce very awkward performances. Since all these arts, besides the stiffness of rules, require fancy, genius, and habit. Yet, nevertheless, these arts owe their being to mathematics, as laying the foundation of their theory, and affording them precepts, which, being once invented, are securely relied on by the artist.

I proceed now, to shew the more immediate usefulness of *mathematics* in *civil affairs*. To begin with *arithmetic*, it would be an endless task to relate its several uses in public and private business. If we should feel the want of it in the easiest calculations, how much more should we do it in those that are something harder; as interest, simple and compound, annuities, &c. in which it is incredible, how much the ordinary rules and tables influence the dispatch of business. *Arithmetic* is not only the great instrument of private commerce; but by it are, or ought to be, kept the public accounts of a nation, in regard to the number, and fruitfulness of its people, the increase of stock, and the improvement of lands and manufactures;

tures; the balance of trade, public revenues, coinage, military power by sea and land, &c. In short, numbers are applicable even to such things as seem to be governed by no rule; I mean such as depend on chance: in which the degree of probability, and its proportion in any two proposed cases, is as much a subject of calculation, as any thing else.

The several Uses of *geometry* are not much fewer than those of *arithmetic*. It is necessary for measuring distances, laying down plans and maps of countries; for ascertaining of property both in plains and solids, or in surveying and gauging. By the help of this science, land is sold by the measure, as well as cloth: workmen are paid the due price of their labour, according to the superficial or solid measure of their work: and the quantity of liquors determined, for a due regulation of their price and duty.

From *astronomy* we have the regular disposition of our time, in a due succession of years, which are kept within their limits, as to the return of the seasons, and the motion of the sun. This is of no small advantage in our public, private, military, and country affairs. The adjusting of the moon's motion to that of the Sun is required for the celebration of the *church-festivals* and *fasts*, according to the ancient custom and primitive institution; and likewise for knowing the ebbing and flowing of the tides, the spring and neap tides, currents, &c. Besides, without a regular chronology, there can be no certain history.

Mechanics have produced so many useful engines, that it would be a task too great to relate the several sorts of them. If we consider such as are invented for raising weights, and are employed in building and other great works, in which no impediment is too great for them; or *hydraulic* engines for raising water; or

such as by making wind and water perform works which would require a great number of hands; or those invented by mankind to give delight by imitating the motions of animals, &c. we shall have reason to extol so excellent an art. How admirable are those invented to measure time, as *clocks*, *watches*, *sun-dials*, &c. or those for ascertaining the changes in the air, as *barometers*, *thermometers*, &c. To this sort of engines ought to be referred spheres, globes, astrolabes, projections of the sphere, the orrery, &c. by which we are able in our closets to judge of the celestial motions, and to visit the most distant parts of the earth, without the fatigue and danger of voyages; to determine their distances, situations, and climates; the nature of their seasons, the length of their days, and their relation to the celestial bodies. To these may be added those instruments invented by mathematicians for the execution of their own precepts, for making observations either at sea or land, surveying, gauging, &c.

Catoptrics and *dioptrics* furnish us with variety of inventions, by which sight, the great instrument of our perception is so much improved, that neither the distance nor the minuteness of the object are any more impediments to it: they have produced a heat inimitable by our hottest furnaces, and have furnished infallible, easy, cheap, and safe remedies for the decay of sight, commonly arising from old age, and for pur-blindness.

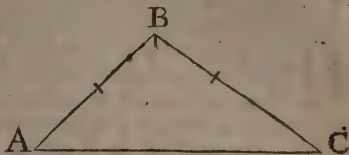
Again, *mathematics* are highly serviceable to a nation in *military affairs*, which take in number, space, force, distance, time, &c. as in *tactics*, *castRATION*, *fortifying*, *attacking*, and *defending*. The modern method of fortification is built on geometry, by which the lines and angles of a fortification, that contribute most to its strength, are determined. But there

(To be concluded in our next.)

MATHEMATICAL QUESTIONS Answered.

Question 3. Answered by P. N. of Bristol.

PUT x = Sine of the lesser Angle at
Base = sine of Angle A, a = lesser
side = A B = 20, b = greater side = 25
= B C, m = sine of the included An-
gle B = 110° = sine 70° , n & u =
sine and cosine of its Sup. to 180° =
sine and cosine of 70° , then $x : a :: m$



$\frac{am}{x}$ = base = A C. But, $1 : a :: n : an$, and $1 : a :: u : au$, and

$$\sqrt{b + au}^2 + an^2 = \frac{am}{x}. \text{ Reduced, } \frac{am^2}{b + au^2 + au^2} = x^2 \text{ hence } x =$$

sine $30^\circ 32'$ and the Base 37.

The same Answered by T. L.

IN any plain triangle, put p and q = sine and cosine of half sum of the
angles at base, *i. e.* A and C, and the tangent of the said half sum will be
 $\frac{p}{q}$, let x = sine of half difference of the angles at the base, then $\sqrt{1 - x^2}$
will be the cosine, and $\frac{x}{\sqrt{1 - x^2}}$ = the tangent of the said half differ-
ence, put s = sum of the sides, and d = difference of the sides, then $s : d ::$
 $\frac{p}{q} : \frac{dp}{sq} = \frac{x}{\sqrt{1 - x^2}}$, which reduced, &c. gives $x^2 = \frac{dp}{s^2 p^2 + d^2 p^2}$, hence
 $x = 4^\circ 28'$, the greater angle $39^\circ 28'$, the lesser angle $30^\circ 32'$, and the
base 37.

The same Answered by Tycho.

PUT $25 + 20 = 45 = s$, $25 - 20 = 5 = d$, p = sine of half sum
of the angles at base = sine of 35° , and q its cosine, and t = tangent of
half the sum of the angles at base. By the common theorem $s : d :: t : \frac{dt}{s}$
= tangent of half difference of the angles at base, whose secant is
 $\sqrt{1 + \frac{td}{s}^2}$, and its cosine $\frac{1}{\sqrt{1 + \frac{td}{s}^2}}$. But $t = \frac{p}{q}$ which written for t

gives $\frac{1}{\sqrt{1 + \frac{pd}{qs}^2}}$ = cosine of half difference of the angle at base, from

which theorem the parts required are determined as above.

Being informed, by the Proposer, that this question was not so much to exercise the
genius, as to procure (if possible,) an easy theorem for solving the case in plain tri-
gonometry with sines only. If such should be hereafter communicated to us, it shall be
duly inserted in our magazine.

another at the greatest azimuth, and the solution of a spheric triangle will answer the same end.

Having the variation of the needle, there are given, the greatest azimuth, viz. the angle $\ast Z P$, the co-declination $\ast P$, and the angle $Z \ast P$ a right angle, from whence the co-latitude $Z P$ is easily determined, i. e. as the sine of the greatest azimuth : to the sine of the co-declination :: so is radius : to the cosine of the latitude.

General SCHOLIUM.

This property, not taken notice of in any treatise of the sphere or public mathematical correspondence, admits a very great variety of practical problems entirely new, which may be compounded and formed as the mathematician shall think fit.

Threadneedle-street,
13th March, 1755.

MATHEMATICAL QUESTIONS to be answered.

Question II. By ASTRONOMICUS. Quest. 14. By W. F. of Chatham.

THE first of December, 1754, in the evening, at Sea, in 2° N. Lat. the amplitude of the Moon was taken at rising 70° , and the same evening her greatest azimuth from the North, was observed 72° . Required, the variation of the needle?

I Have a right cone which cost me $5\text{ l. } 13\text{ s. } 7\text{ d.}$ at 10 s. per foot solid, its diameter at base being $\frac{5}{8}$ of its altitude; I would have its convex surface divided in the same ratio by a plane parallel to its base. *Quære*, the slant height of each part?

Quest. 12. By Mr. JOHN ASH.

ON the first of April, 1754 (declination $4^{\circ} 37'$ N.) the Sun came due East 38 minutes after his rising. *Quære* the Lat. of the place of observation?

Quest. 15. By LONDINENSIS.

THE side of a rock rises perpendicularly 30 feet above an horizontal plane, and a stream of water is driven over the top of the rock with such a force as to project the water 20 feet from the side of the rock on the horizontal plane. *Quære*, the diameter of the greatest wheel that can be driven in an over-shot manner within those limits?

Quest. 13. By a Wheelwright.

THE spokes of cart and waggon wheels being placed not perpendicular to their axes, lest the carriage should overturn in roads which are not horizontal from side to side; under what angle, with the perpendicular to the horizon, must I fix the spoke, to diminish its strength thereby but $\frac{1}{20}$ when the carriage is on an horizontal plane?

Quest. 16. By MECHANICUS.

WHICH is the strongest, an oak beam of 10 feet long and 1 foot square, or one of the same timber 15 feet long and $1\frac{1}{2}$ feet square; and what is the difference of their strength?

Quest.

Quest. 17. By Mr. JOHN SHIP-
MAN of Hull.

A Ship sailed from Lat. $53^{\circ} 40'$ N. on a certain course, between north and east, until her departure was 84 miles; and after sailing 34 miles more upon the same course, she was in Lat. $55^{\circ} 20'$ N. Required her course and distance run, without algebra?

Quest. 18. By L. T.

IF the altitude of a sugar loaf be 20 inches, and the diameter of its base 16 inches; quære the dimensions of each part when it is cut by a plane parallel to its altitude, so that the weight of the greater part is $\frac{3}{2}$ of the lesser?

Quest. 19. By L. B.

IN Lat. $51^{\circ} 32'$ N. stand two pillars S. W. and N. E. of one another at the distance of 200 feet, the height of the southermost pillar is 60 feet, and that of the northermost 40 feet. At what time of day on *June 20th* 1755, will the shadows of their summits approach the nearest to each other?

Quest. 20. By X. Z.

THE top diameter of a silver cup (in form of the frustum of a cone) is 3 inches, its bottom diameter 4 inches, and altitude 6 inches, being fill'd with liquor, a person drank until he could see the middle of the bottom. Quære what was left?

Observations on the Weather.

Mar.	Baro- meter.	Therm.	Pluvia- meter.
21	29 : 6 $\frac{1}{4}$	19 $\frac{3}{4}$	0 : 0
22	29 : 5	20	0 : 9
23	29 : 6	21	21 : 1
24	29 : 4 $\frac{3}{4}$	21	20 : 3
25	29 : 6	21	4 : 5
26	29 : 8	24	15 : 2
27	29 : 9 $\frac{3}{4}$	25 $\frac{1}{2}$	3 : 2
28	29 : 8 $\frac{3}{4}$	25 $\frac{1}{2}$	0 : 0
29	30 : 0	25	0 : 0
30	29 : 9 $\frac{3}{4}$	25	0 : 0
31	29 : 7 $\frac{1}{2}$	25 $\frac{1}{2}$	0 : 0
April 1	29 : 8 $\frac{3}{4}$	25 $\frac{1}{2}$	0 : 0
2	29 : 7 $\frac{1}{2}$	26	18 : 1
3	29 : 7 $\frac{1}{2}$	25 $\frac{1}{2}$	10 : 2
4	29 : 6 $\frac{3}{4}$	25 $\frac{1}{2}$	14 : 8
5	29 : 4	26	20 : 4
6	29 : 6 $\frac{3}{4}$	23 $\frac{1}{2}$	9 : 8
7	29 : 6	24 $\frac{1}{4}$	5 : 0
8	29 : 5 $\frac{1}{2}$	24	0 : 8
9	29 : 5	23 $\frac{1}{2}$	13 : 0
10	29 : 8 $\frac{1}{4}$	25 $\frac{1}{2}$	0 : 2
11	29 : 5 $\frac{1}{2}$	27 $\frac{1}{2}$	0 : 0
12	29 : 6 $\frac{1}{2}$	26	7 : 5
13	30 : 0	26	1 : 2
14	30 : 0 $\frac{3}{4}$	26 $\frac{1}{2}$	0 : 0
15	30 : 1 $\frac{1}{2}$	27	0 : 0
16	30 : 1 $\frac{3}{4}$	27	0 : 0
17	30 : 0 $\frac{1}{2}$	27 $\frac{1}{2}$	0 : 0
18	30 : 0 $\frac{1}{2}$	27 $\frac{1}{2}$	0 : 0
19	30 : 0 $\frac{1}{4}$	28 $\frac{1}{2}$	0 : 0
20	29 : 8 $\frac{3}{4}$	32 $\frac{1}{2}$	0 : 0
21	29 : 7 $\frac{1}{2}$	33	0 : 0

A S O N G.

CAN'ſt thou, unkind *Rosetta*, doubt
Thy *Strepſhon*'s ardent love?

Thy every glance muſt ſpy it out,
His every action prove.

When thou'rt in ſight his raviſhed eyes
On thee alone can gaze;

And when he ſpeaks, his treach'rous voice
The latent flame betrays.

His conſcious cheeks, their proof to join,
With warmth, unuſual, glow:

Happy! cou'd they thy breſt incline
A mutual warmth to know.

The infant paſſion in his breſt
An eaſy lodging found;

But ſoon, 'by vig'rous growth encreas'd,
It burſt the native bound.

Since then the love thou did'ſt impart
Can't ſuch confinement bear;
What's now too big for *Strepſhon*'s heart,
Let thine, *Rosetta*, ſhare.

To Mr. DUCK.

On his Poem, called CÆſar's CAMP:

Or, St. GEORGE'S HILL.

TO Duck, Apollo lent his lyre,
And bad him try his ſkill;
Duck tun'd it, at the God's deſire,
And ſung St. George's Hill.

in PROSE and VERSE.

59

A NEW SONG.

Now the sky-lark swells his throat, With each

sweetly vary'd note; and the

sylvan choirists sing, ushering in the

breeze-born spring. Haste, and

see fair FLORA smile, her rich Eden, Britain's

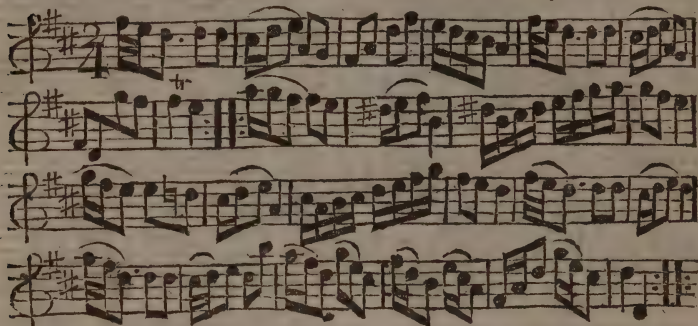
isle: Haste and yield thy hand to mine, Flora's treasures

shall be thine. Sym.

See! the little lambkins bound,
Gamefome, o'er the flow'ry ground.
Mild, and innocent, as thee;
Happier far, my maid, than me.
They never felt a lover's pain;
Never met with cold disdain:
And, like thee, they start away,
When I ask thee but to stay.

Calia, shall my tuneful reed,
Never gain a lover's meed?
Must I throw my pipe away,
And no more refute the lay?
Know, my fair one, love, refin'd,
Dignifies the human mind:
Heav'n-born virtue smoothes thy brow,
And says, "that love is all below."

Princess AUGUSTA's Tamborine. *A Country-dance.*



The 1st Couple cast off two Coup. — Lead up to the Top, and cast off one Coup. — Lead thro' the Bottom and cast up, foot it and turn your Partner — Hands six round, and Right Hand and Left —

S O N G.

"Contented all day I will sit by your side,
Where poplars, far spreading, o'er-
arch the cool tide;

"And while the clear river runs purling
along,

"The Lark and the Linnet contend in their
song.

Perhaps, when the Nightingale opens her
throat,

And fills the gay concert in every note;
Or, when Turtles' soft murmurs are heard
thro' the grove,

You'll soften to pity, and listen to love.

Still should you neglect the distress of my
heart,

And music no tender emotions impart;
In quest of new charms the dull time I'd be-
guile,

And bask in the glow of a look or a smile.
Kent.

To a married Lady with Dr.
WATTS'S LYRIC POEMS.

By her Husband.

I Ndulge, my fair, the lays thy charms in-
spire:
For love, like ours, great Watts attun'd his
lyre.

Our souls first rapt in *virtue's* sacred cause,
He forms us next to *friendship's* gen'rous
laws.

How potent *each* in this confed'rate view,
Not less than us, the letter'd poet knew.
Finish'd in *both*, still may we rise in life;
Nor death, 'till late, dissolve the noble strife.

Tho', light as chaff, to the loose, sportive
winds,

It's vows, too oft, the treach'rous heart re-
signs;

Yet, in each scene, with thy dear form im-
prest,

And aw'd by *grace*, which guards the lover
best:

Herself the pole shall bright *Sarissa* be,
And *Lemuel's* tend'rest passions point to
thee.

Others shall sink in thy superior Ray,
As darkness flies before the blaze of day.

S O N G.

C Ome, *Lucinda*, nymph divine,
Sister of the tuneful nine;
Haste thee to the vocal grove,
Breathing odours, breathing love.

Be thy temples deck'd around,
With a flow'ry chaplet crown'd;
Curling locks o'erspread thy breast;
In a mantle lightly dress'd.

the mossy bank reclin'd,
scently wafted by the wind,
singing Sylvans round thee there
all forget their sleepy care.

Æolus, come, forsake thy choir,
and ring drop the yielding lyre;
Lucinda sweeps the string,
but *Syrens* cease to sing.

o Favonius be the song,
and whom vernal muses throng;
while the warblers of the sky,
telling the chorus as they fly.

come then, fair one, come away,
suddenly now resume the lay:
hear, oh! hear, an artless swain
in love woo thy gentle reign.
Kent, 1741.

OCCASIONAL EPILOGUE to *APPIUS*.

By the AUTHOR.

PLACE antient *Rome* and *Britain* in the
scale:—

Which would for solid liberty, prevail?—
Come; let us fairly poise them, if you please;
I will furnish out an epilogue with ease.
Here too the critics will perhaps admit,
I hat such a sort of epilogue is fit;
No such a *Roman* subject tack'd:—at least
is fitter than a wanton ill-tim'd jest.——

While *Rome* the sweets of her republic felt,
Within her walls a manly freedom dwelt.
Of virtue, freedom is the source and food:
Her sons were valiant, and their morals good.
Weak in its texture, but in virtue strong;
'Twas thus that her republic lasted long;
From what else could (conceive it as we list)
Such a frail form of government subsist?

Soon as the race of royalty was run,
A wild, licentious anarchy begun:
Deep were the roots of discord and debate;
For *Rome* was split into a double state:
This way the senate, that the people drove;
The rich and few with needy numbers strove;

We have received several answers to the anatomical question in N^o. II. for which we return our correspondents thanks; especially J. W—tt, H. Wood, &c. which shall be inserted the first opportunity.

While equal pow'rs their adverse leaders
crown'd,
Without a prince, to cast the balance,
found.——

Dire was the strife; nor otherwise ap-
peas'd,
Than as the virtue of the victors pleas'd.
In *Rome*, when antient virtue ceas'd to
dwell,

Forthwith the frame of her republic fell.
The last great champions of her rights ill-
sped;

And freedom, with the love of country, fled.—
Be this truth grav'd on her republic's tomb:
It bore the viper, ruin, in its womb.——

Not so with *Britain's* kingly common-
wealth;
Her source is wisdom, and her basis health.
Firm as a rock the noble system stands;
Fashion'd by time, and reason's skilful
hands.——

With liberty, not less than *Rome*, inspir'd;
By the same sparks of human discord fir'd;
In one well-jointed state, of form compleat,
Commons and peers, pois'd by the scepter,
meet.——

Mighty the monarch's pow'r on *Britain's*
throne;

As much as heav'n and nature meant to one;
He, strong to bless his people, and to save;
Only wants pow'r to ruin and enslave.——
Princes, vain is the pride, the pleasure low,
Which from an abject, servile homage flow,
Would ye grow truly great; look here, and
then,

Like *Britain's* monarch, be the kings of men.
Instead of forging foreign fetters, deign
To free your subjects, and by reason reign.——
How great, how godlike is the king! how
blest,

Who stands the shield of liberty confest!
Whom princely merit, mercy, justice crown:
Who deems the public happiness his own:
The widow-making sword who never draws,
Except for freedom and in *Europe's* scaufe!
Him hail, ye *Britons*. Hail him every land,
Which feels the prop of his imperial hand.
Be this the nation's and the muses's song:—
Live *GEORGE*, the father of his people, long.

A CHRONOLOGICAL MEMOIR of Occurrences.

For *APRIL*, 1755.

Barbary.

THE government of *Algiers* is preparing
to send a ship with presents for the grand

Signior, as usual, on a new Dey's accession,
and to desire of the Sultan the investiture
of the Cassan for him; as, till that is sent
K the

the Dey is never looked upon to be absolutely confirmed in his office, and it is never refused by the Porte. The new Dey has published an edict, forbidding the Moors to wear gold and silver upon their cloaths. The Spanish missionaries for the redemption of slaves, left this City, on their return to Cartagena, on the 24th of December last, having settled the Cartel for the exchange of prisoners. About a month since, a Saletine cruiser, of 18 guns, and 150 men, entered this port with a French prize, and has been allowed to sell both ship and cargo.

The Dey has confirmed and put his seal to the peace, and to the additional article made by commodore Keppel, concerning the English packet boats; but has declared war against the Dutch and Imperialists.

On the 24th of July last, the late Bashaw of Tripoly departed this life, after a tedious and painful illness, about six in the evening, and at seven, his eldest son Sidi Ali was installed, and sat in the chair of state; at ten the same evening, he was proclaimed through the city, and early the next morning, the Divan, officers of state, and all ranks of people within, 20 miles of that Capital, paid him their respective congratulations; as did likewise all the European consuls; and according to the eastern style, every one carried with him a present. This prince is possessed of the universal affection and esteem of all degrees of people: He is now about 23 years of age, of a very affable presence and behaviour, temperate, just, and an utter enemy to all manner of vice.

On the 7th of October last, he renewed and confirmed all former treaties, subsisting between his Britannic Majesty and the state of Tripoly.

Turkey. The grand Vizir of Constantinople is deposed, and the Janizar Aga is made Caimacan, until another Vizir is named, who, it is expected, will be Aly Pascha Echim Oglu, for the third time, who set out from Tribizonde about the beginning of March last, but was detained for some time, through the badness of the roads.

The Dey has sent several Christian slaves, blacks, and wild beasts, as a present to the grand Signior, who, in return, has given him some cannon and ammunition, and assured him of his protection.

Poland. Baron Scarffenstein, who had resided at Warfaw for forty four years, in quality of resident, from their imperial Majesties, died therein the 75d year of his age, and was buried with great funeral pomp in the church of the convent of the Capuchins.

The ambassador, who is coming from Constantinoale, to notify to the king and republick of Poland, the accession of Osman

III. to the Ottoman Throne, arrived some time ago at Dubno, and is daily expected at Warfaw.

The navigation of the Elbe, which had been interrupted for ten weeks by the ice, became free on the 8th of March last.

Count Potocki, great cup-bearer to the Crown, is appointed to compliment the new grand Signior, upon his accession to the Ottoman Throne.

Portugal. The fleet bound for the Bay of All-Saints, is already equipped; and that for Maragnan and Para will be ready to put to sea in a few days.

His Majesty has ordered the sum of four-score thousand cruzades to be paid to the religious of the order of Mercy, to enable them to ransom such of his majesty's subjects who are in slavery at Algiers, or elsewhere upon the coast of Barbary.

Italy. Mount Vesuvius, about the fourth of March last, began to throw out greater quantities of bituminous matter than it did at the preceding eruptions.

About the 16th of February last, two Maltese men of war, having fallen in with three Tunesian corsairs, off Messina, a smart engagement ensued, in which, the Maltese sunk one of the corsairs, and took the other two. There were 250 Turks on board, whom they carried into slavery.

The king's Chebecks are on their cruize against the Barbary pirates, who greatly interrupt their navigation.

United Provinces. The states of Holland, on the 21st of March last, were in deliberation upon the reports of the admiralties concerning the affairs of the free port. The government here is expecting farther news from Algiers; as the report of a rupture with the republick differs so widely from the accounts of the Dutch consul there, of the 18th of February last, in which he mentions his having renewed the treaty with the new Dey.

On the 15th of this instant April, their high mightinesses resumed their deliberations. The deputies of the several Colleges of the admiralty, are taking the necessary measures to protect the navigation and commerce of this kingdom from the Algerines.

Their high mightinesses, by an ordinance lately published, suspended from the 1st of April to the end of May, the prohibition against bringing horned cattle into Holland; on condition, nevertheless, that all cattle from Denmark, Jutland, or any of the adjacent countries, should be brought only by sea, and that the necessary certificates should be produced, of their being in health, and of their coming from uninfected places.

On the 25th they reassumed their deliberations; and the deputies of the several Colleges of the admiralty meet regularly to consider of the affairs of their department.

Plantation News. Letters from New-York, dated January 6. say, that near 6000 pick'd grenadiers, had lately arrived from France, at the Fort on the Ohio, who were immediately employed in digging mines to blow up the English in their approaches to attack them; and, that the French threaten they will by force compel the English Indians to join them.

Extract of a letter from Mr. W. Fr. Phillips, a volunteer in Sir Peter Halket's regiment, dated from Hampton Road, Virginia, 7th March, 1755.

'The Fishbone and the Asgood transports arrived here the last day of February, after a pleasant passage of seven weeks. The convoy and the rest of the transports are not yet come in; however, we can form a body of 200 men, which, with 400 Americans that are to join us, are to go upon immediate action, by attacking Monogahely Fort. We did not lose a man in the voyage, except one, who, by accident, fell over-board. We are this day to sail up the river Patamack, and you will certainly hear of our taking the Fort.'

The assembly of north Carolina, have pass'd a bill for raising 8000 l. for assisting the colony of Virginia, against the encroachments of the French.

Scotland. The linnen cloth stamp here for sale, from November 1. 1753; to Nov. 1. 1754, amounted to 8,914,369 yards, which was valued at 506,816 l. 18 s.

Ireland, Dublin, April 1. Extract of a letter from Peake, in the parish of Aghabulloge, and barony of Muskerry, in this county, about ten miles from this city, from the Rev. Marmaduke Cox, rector of the said Parish.

'Last Thursday, as labourers were making a ditch to inclose a potatoe garden, one of them dropp'd his spade into a deep hole, which obliged him to open the earth to get up his spade, where he found a passage into fifteen (some say seventeen) very large subterraneous rooms or caverns; in one of which, by estimation, were about 500 skeletons; in another 5 skeletons; all intire,

and laid at a distance of about a foot from each other. I examined one of the skulls, and found it more perfect and clean, than any boiling or chirurgical art could prepare it; the teeth very regular and distinct; but, upon being expos'd a while to the air, it opened and mouldered into pieces. The bones were of a pale reddish, or brick colour; some others of them appeared as if they were burned. The country people flock'd in so fast, on hearing of this antique piece, that they trod the bones into powder, they being quite destitute of oil or substance, for they were indeed as the shadow of bones, *pulvis et umbra sumus.*

'It is imagined, that there must be another passage to these subterraneous chambers from a Danish fort about 150 yards from the present place of entrance, this being very narrow. The rooms are about five feet high. There are other chambers that are not yet got into, the entrance being defended by large stones laid in the doors, which cannot easily be removed.

'Whether they were the habitation of the Aborigines Irish, or contrived by the Danes about the year 8 or 900, the curious may judge.

'There was a beautiful carved wood comb and comb-case found in one of the rooms, but the air mouldered it to dust.

'P. S. It is supposed, if an entrance can be made into these chambers, defended by the stones, that some curiosities will be found that will give further light to this affair; for one part of those caverns was their dwellings, and the other part their graves.'

April 15. Last Saturday the paving of Essex-Bridge was finished, when vast numbers of people walk'd over it, and great rejoicings have been made on the occasion. The passage of the old bridge was stop'd up on the 19th of January, 1753, and the first stone of the north abutment was laid on the 28th of September following. This is the first bridge that has been executed after this manner in any of these kingdoms, and intirely executed by our own countrymen, without so much as the loss of life or limb of any person, except one man, who being intoxicated fell in.

L O N D O N.

Mar. 25. HIS Majesty having, by a most gracious message to the house of Lords, signified the necessity of augmenting our forces by sea and land, in order to provide for the security of our colonies in America, as well as for the defence of these king-

doms; their Lordships address'd his Majesty thereon: to which his Majesty returned the following most gracious answer.

"My Lords,

"I thank you for this affectionate address. Nothing shall be wanting on my part, that
K 2 may

may tend to the effectual support of the just rights and possessions of my crown, and of the true interests of my people. The confidence which you repose in me, shall always be made use of with the strictest regard to those great and important objects."

25. The Trimmer, Bellamy, arrived at Plymouth from Rochelle, who reports, that the French have fifteen men of war, and 20 frigates at Brest; five at Toulon; four seventy-four gun ships, and two frigates, lying at anchor near the isle of Dien; and that

they have 20,000 men on the island of St. Martins ready to embark.

29. This day the East India Company shipped 2000 ounces of gold coin and 12000 ounces of silver coin for their factories.

April 23. About 11 o'clock last Sunday night, the post-boy was stop'd, between Market-harborough and Kibworth, by two men, who took from him the Leicester, Loughborough, Nottingham, Derby, and Ashbourn Bags, and then rode off full speed towards Harborough.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane.

- Mar. 20. *Hamlet*.
 21. *An Oratorio*.
 22. *The mourning Bride*.—*Englishman in Paris*.
 31. *King Henry VIII*.—*Proteus*.
 April 1. *The Provoked Wife*.—*Duke and no Duke*.
 2. *The Stratagem*.
 3. *Every man in his humour*.—*Englishman in Paris*.
 4. *The Chances*.—*Miss in her Teens*.
 5. *The Mistake*.—*Marplot in Lisbon*.
 7. *The Orphan*.—*Englishman in Paris*.
 8. *Zara*.—*The Chaplet*.
 9. *Measure for Measure*.—*Proteus*.
 10. *Creusa*.—*The Devil to pay*.
 11. *The Suspicious Husband*.—*Devil to pay*.
 12. *Much ado about Nothing*.—*Proteus*.
 14. *Jane Shore*.—*Lethe*.
 15. *The Schemers*.
 16. *The Distressed Mother*.—*Lethe*.

Covent-Garden.

- Alzira*.—*Orpheus*.
An Oratorio.
The mourning Bride.—*Irishman in London*.
Coriolanus.—*Orpheus*.
The Earl of Essex.—*The Lover his own Rival*.
The Stratagem.
Romeo and Juliet.
Hamlet.—*Lying Valet*.
Venice preserv'd.—*Orpheus*.
The Provok'd Husband.—*Miss in her Teens*.
The Spanish Friar.—*The Prefs-Gang*.
Comus.
Henry IV.—*Taste*.
Romeo and Juliet.—*Prefs-Gang*.
Henry IV.—*Orpheus*.
The Rebearsal.—*Lottery*.
Jane Shore.—*Damon and Phillida*.
The Miser.—*Miss in her Teens*.

BIRTHS.

March, 25. The lady of George Low, Esq; delivered of a daughter.

29. The right hon. the marchioness of Granby, of a daughter.

April, 1. The right hon. the lady Romney, of a daughter.

MARRIAGES.

March, 20. The right hon. the earl of Fingale, to miss Woolaseott.

22. Mr. Joshua Ruddock, to miss Festin.

23. The rev. Dr. Abbott, to miss Farr.

The rev. mr. Powlett, chaplain to his grace the duke of Bolton, to miss Gunman.

25. Mr. Clovesley, to miss Lintott, with a fortune of 14,000l.

31. Sir James Cockburn, bart. to miss Douglas, with a fortune of 10,000l.

April, 1. Mr. Woodgat Hodges, to miss Atkins.

Mr. W. Hanson, to miss Keen,

2. Matt. Howard, Esq; to miss Ardefoif.
 The right. hon. George Drummond, Esq; to mrs. Elizabeth Green, a widow lady of great fortune.

3. Mr. John Wale, to mrs. Crossfield.

5. Mr. Francis Methold, wine-merchant, to miss Magdalen Lys.

10. Mr. Richard Matthew, to miss Felton.

George Barclay, West-India merchant, to Mrs. Mary Richards.

11. Mr. W. Russel, to Mrs. Sanderfon, relict of Edward Sanderfon, Esq; late high sheriff of the county of Surry.

13. Mr. Chambers, an eminent painter, to miss West, with a fortune of 2000l.

15. — Grimston, Esq; to miss Shaw.

DEATHS.

March 21. The rev. mr. Alex. Young, late rector of Wickham and East-church in Kent,

22. Mr.

22. Mr. Hodges, hofier, of an apoplec-
tic fit.
The hon. lady Wilmanfon.
23. Mrs. Overall, relict of the late mr.
Overall.
24. Mr. John Atkins, coal-merchant.
25. John Edwards, Efq;
27. The lady Feaft, relict of the late Sir
Felix Feaft.
28. Mr. Murden, merchant.
April, 2. Ifaac Grantham, merchant.
4. Capt. E. Atkinson, Weft-India mer.
5. Mr. Spencer, of London, brafter.
8. Mr. Joseph Garret, Spanifh merch.
Mr. Rogers, many years sexton of St.
Michael's Cornhill.
9. Mr. Joseph Crowdel, merchant.
15. Mr. John Turner, linner-draper.
Mr. Bourn, bookfeller at the Royal Ex-
change.

Civil and military preferments.

March, 27. The right hon. William,
lord Cavendifh of Hardwyke (commonly
called marquis of Hartington) was de-
clared by his majesty lieutenant general, and
general governor of his majesty's kingdom
of Ireland.

29. His grace Lionel, duke of Dorfet,
made mafter of his majesty's horfe.

Joseph York, Efq; appointed colonel of
the regiment of Foot whereof John Walde-
grave, Efq; was late colonel, and likewise
captain of a company in the faid regiment.

April, 3. The right hon. Other Lewis,
earl of Plymouth, appointed lord lieutenant
of the county of Glamorgan.

ADMIRALTY-OFFICE, April 5.

HIS Majesty has been pleased to appoint
the following Field-Officers, Captains,
and firft Lieutenants, for the fifty Compa-
nies of Marines to be forthwith raifed, to
wit:

Lieutenant-Colonels. James Patterfon.
Theodore Drury. Charles Gordon.

Majors. Rd. Bendyshe. Charlton Leigh-
ton. James Burleigh.

Captains.	Firft Lieutenants.
Hector Boifron.	Daniel Campbell.
Gabriel Sediere.	Dudley Crofts.
John M'Kenzie.	George Langley.
Charles Repington.	James Hill.
Alexander Cumming.	Alexander Cathcart.
Sir R. Abercrombie.	Francis Hay.
Alexander Douglaſs.	Donald M'Donald.
Edward Rycaut.	John Suttie.
John Wright.	Edward Howarth.
Thomas Dawes.	Robert Douglaſs.
John Tufton Maſon.	John Phillips.
Thomas Sheldon.	John Brown.
Thomas Moore.	Collin Campbell.
John Gordon.	Robert Ewer.
Richard Barker.	Archibald Campbell.

James Dundas.	George Ord.
George Maxwell.	Lancelot Willan.
James Robertfon.	William Frazier.
John Campbell.	James Short.
Claud Hamilton.	George Boſſuque.
John Bell.	James Mercer.
John Dennis.	John Frazer.
Thomas Dalton.	Wm. Aytoun Douglas.
Thomas Whitwick.	Denis Bond.
James Hamilton.	Thomas Backhouſe.
Roger Basket.	Gerrard Dennit.
Henry Greame.	Thomas Troy.
John Beagham.	Edward Kyffin.
Samuel Proffer.	George Gulfton.
Patrick M'Donal.	Richard Denniſon.
Alexander Irons.	William Thompfon.
Charles Webb.	John Elliot.
William Stacey.	John Pitcairn.
Richard Brough.	James Perkins.
Henry Smith.	William Dennis.
John Johnfton.	Ralph Teeſdale.
Leathes Johnfton.	Pierce Dent.
Chriſtopher Gauntlet.	Robert Shirley.
Tooker Collins.	Daniel Campbell.
Walter Caruthers.	John Blinkhorn.
John Vere.	William Lutman.
William Piſton.	Thomas Wight.
Richard Shuckburgh.	William Rowley.
Richard Hawkins.	Thomas Stamper.
George Maddifon.	Thomas Airy.
Charles Grey.	Thomas Smith.
Robert Burdet.	Waller.
John Yeo.	Charles Fletther.
Robert Parkhurſt.	Benjamin Edwards.
Alexander Leſlie.	Enoch Markham.

Whitehall, April 12. The king has been
pleaſed to conſtitute and appoint the right
hon. James lord Tyrawly, lieutenant-gene-
ral of his majesty's forces, to be colonel of
the Coldſtream regiment of foot-guards,
whereof the right hon. William Anne earl
of Albemarle, deceased, was late colonel,
and likewiſe to be captain of a company
in the faid regiment.

The king has been pleaſed to conſtitute
and appoint the right hon. George earl of
Albemarle, to be colonel of his majesty's
own regiment of dragoons, whereof the
right hon. James lord Tyrawly was colo-
nel; and likewiſe to be captain of a com-
pany in the faid regiment.

The king has been pleaſed to conſtitute
and appoint Philip Honeywood, Efq; to be
colonel of the regiment of foot, whereof the
right hon. George earl of Albemarle was
colonel; and to be captain of a company
in the faid regiment.

The king has been pleaſed to conſtitute
and appoint Montague Wilmot, Efq; to be
lieutenant-colonel of the regiment of foot,
commanded by Hugh Warburton, Efq; ma-
jor-general of his majesty's forces.

The

The king has been pleased to constitute and appoint George Lawfon Hall, Esq; to be major to the queen's regiment of dragoons, commanded by the hon. sir John Cope, knight of the Bath, lieutenant-general of his majesty's forces.

The king has been pleased to constitute and appoint David Bell, Esq; captain of a troop in the regiment of dragoons commanded by William Kerr, Esq; commonly called earl of Ancram.

ECCLESIASTICAL PREFERMENTS.

The rev. mr. Dreffield of Featherstone near Pontefract, made prebend of that collegiate church, vacant by the death of mr. Warwick.

The rev. mr. Thomas Green to the rectory of Coltsworthy, Norfolk.

The rev. mr. William Daddo to the rectory of Off, otherwise Offwell, Devonshire.

The rev. mr. Erasmus Saunders, D. D. to the vicarage of Wantage, Berks.

The reverd. mr. Adams to the rectory of Counde, near Shrewsbury, vacant by the death of the late bishop of Landaff.

The rev. Dr. Warburton is instituted by the Ld bishop of Durham into the prebend of Durham, late vacant by the death of Dr. Mangey.

The rev. mr. Samuel Welsh to the rectory of Teckenham, Devonshire, worth upwards of 120l. per annum.

The rev. mr. Parker Rowlands appointed one of the duke of St. Alban's chaplains.

The rev. mr. Christopher Hildyard to the vicarage of North Kesley, London.

The revd. Thomas Bounce, B. A. to the rectory of Ingram in Yorkshire.

The rev. Sam. Harvey to the rectory of St. Andrew in the Vale, in the county of York.

His grace the Archbp. of Canterbury (on the 3d of April last) appointed Dr. Hay chancellor of the diocese of Worcester, &c. to be vicar-general to his grace, in the room of Dr. Paul lately deceased.

His grace the Archbp. of Canterbury (on the 5th of April last) appointed Dr. Simpson, chancellor of the diocese of London, to be commissary of the diocese of Canterbury, in the room of Dr. George Paul deceased.

His grace the Archbp. of Canterbury has conferred the degree of Doctor of Divinity on the rev. mr. Hildsley, vicar of Hitchin in Hertfordshire.

The reverd. mr. John Folds is appointed chaplain to the Rt. hon. the marquis of Harrington.

The reverd. mr. Thomas Hay is appointed one of the domestic chaplains to the Rt. hon. Henry earl of Lincoln.

The rev. Dr. Nicholas Webb is made a prebend of St. Paul's cathedral.

DISPENSATIONS to hold two livings.

March 27. The rev. George Secker, A.M. chaplain to the bishop of Oxford, to the vicarage of Yardley, Hertfordshire, with the rectory of St. Mildred in Breadstreet and Margaret Moses thereto annexed, London, worth upwards of 250l. per ann.

April 4. The rev. William Daddo, A. M. to hold the vicarage of Dunsford in Devonshire, with the rectory of Offwell in the county aforesaid, worth upwards of 280l. per annum.

April 12. The Rt. rev. Dr. Richard Newcombe (now bishop of Landaff) to hold the rectory of Whitchurch, with the chapel of Tiltstock, in Shropshire; with the rectory of Bedives in Monmouthshire, with the chapel of Rud Doy in Glamorganshire.

April 18. The rev. John Eyton, M. A. chaplain to the duke of Roxburgh, to the rectory of Pulverhatch, Shropshire; with the second portion of the rectory of Westbury in the same county.

BILL of Mortality from Mar. 18. to Apr. 22.

Buried		Christened	
Males	1072	Males	162
Females	1114	Females	753
Under 2 years old 765		Buried,	
Between 2 and 5 165		Within the walls 179	
5 and 10 — 66		Without 460	
10 and 20 — 62		Mid. and Surry 1045	
20 and 30 — 200		City & Sub. West. 502	
30 and 40 — 218			
40 and 50 — 211			
50 and 60 — 173			
60 and 70 — 160		Weekly Mar. 18. 477	
70 and 80 — 106		Apr. 1. 442	
80 and 90 — 50		8. 480	
90 and 100 — 10		15. 348	
100 and 109 — 0		22. 439	
2186		2186	

BT ——— KR ——— S.

Mar. 25. Peter Henry Otterfenn, of Hoxton, dyer.

29. Jeremiah Wakefield Hartcup, of Canterbury, inn-holder.

Thomas Hobday, of Birmingham, tallow-chandler.

April 1. Richard Mills, of Old Brentford, distiller.

Richard Hawksworth, of Burstall, Yorkshire, woollen-draper.

5. Robert Vicary, of Newton Bushell, Devon, ferge-maker.

Thomas Bell, of the Strand, linnen-draper.

8. Tully Lamb, of New-Castle upon Tyne, woollen-draper.

15. Tho. Clipperton, of Southgate, carpent.

Wil.

William Kell, of Westminster, taylor.
John Price, of Hay, Brecon, taylor.
Samuel Oakes, of Scarborough, merchant.
19. Robert Manfer, of Norwich, worsted-
weaver.
John Homan, of London, sugar-baker.
Julius Homan, of London, also sugar-baker.
Thomas Wickens, of Northampton, carrier.

Henry Cowle, of Berwick upon Tweed,
cooper.
22. J. Johnston of London, wine-merchant.
Edward Baker, of Westminster, victualler.
R. Jennings, of St. Clement danes, victual.
Francis Hammond, jun. of Norfolk, tanner.
Edman Crook, of Bristol, barber and peruke-
maker.

BOOKS, published since our last. 1755.

Answer to Romaine's comment. *Owen*.
Annals of the Empire, 6s. *Millar*.
Authentic Memoirs of the Life of Richard
Mead, 1s. *Whiston*.
Address to the Electors of England, 6s.
Crowder.
Bigg's Military History of Europe, 6s.
Baldwin.
Bulkley's notes on the philosophical writings
of lord Bolingbroke, 2s. 6d. *Noon*, &c.
Birth-day of Folly, 1s. *Cooper*.
Commentary on *Boerhaave*, on the venereal
disease, 1s. *Owen*.
Centaur not fabulous, 5s. *Millar*.

—As the title of this work is somewhat
ludicrous and obscure, at first sight, and not
obvious enough to the understanding of
common readers; we think it highly requi-
site, to introduce here a remarkable passage
in the dedication to a lady of high taste,
which will fully solve the riddle, beyond all
dispute. The words of the author, who-
ever he may be, are there very clear and ex-
pressive, and evidently enough shew, that
his sole, or principal aim, is to reform an
impious, abandoned, and licentious age.—
“ You will probably ask (says he) why
Centaur is prefixed as a title to the following
letters. The men of pleasure, the licenti-
ous and profligate, madam, are the subject
of them: and in such, as in the fabled Cen-
taur, the brute runs away with the man;
therefore call them Centaurs. And farther
I call them Centaurs, not fabulous, because
by their scarce half-human conduct and cha-
racter, that enigmatical, and purely ideal
figure of the antients, is not unriddled only,
but realized.”

Collection of the Moral Sentiments in Pame-
la, Clarissa, and Sir Charles Grandison.
3s. 6d. *Hitch*, &c.

Country Gentlemen's advice to his neigh-
bours, 3d. *E. Owen*.

—The design of this little tract is truly ho-
nest, and praise-worthy, it is intended to
reclaim, if possible, the present profligate
age from all the reigning vices now in vogue;
and had the author called it a country par-
sons serious exhortation to his too modish
parishoners, we should have contented our-
selves with his title only.

Chit Chat, a novel, 2 vol. 12mo. *Doddsley*.

Doddsley's Collection of Poems, vol. IVth, 3s.
Detraction, an Essay, 6d. *Bouquet*.
Duncan's *Cæsar's* commentaries, 2 vol. in
8vo, *Tonson*.
Essay on Architecture, 3s. *Osborne*.
Fothergill's Free Thoughts, &c. 4s. *T. Payne*.
Fitz Osborne's treaty of fruit-trees.
Free (Dr.) his seasonable reflections on the
importance of the name of England,
Sandby.

French Scholar's Guide, 2s. 6d. *Keith*.
Hoadley (Bishop) his 20 sermons. *Knapton*.
Heathcote's sketch of lord Bolingbroke's
philosophy, 1s. 6d. *T. Payne*.
Hutton's Essay on the character of count
Zinzendorf.

Leman (Sir Tanfield) his matrimony analy-
sed, 1s. 6d. *Griffiths*.

Letters on the English Nation, by an Italian
Jesuit. 8s. *Scott*.

— to a young Prince, 5s. *Linde*.

— to dean Swift, Esq; from the Author
of the Observations, &c. 6d. *Reeve*.

Man's mistaken (the) 1s. *Swan*.

Memoirs of Sobrina, 6s. *Woodyer*.

Muzel's medical and chirurgical Cases, 2s.
Owen.

Meadus: Poema in memoriam Richardi Mead,
6s. *Brown*.

Masters (Mary) her familiar Letters. *Hen-
ry and Cave*.

Number of a Set of Figures of Plants adapt-
ed to *Millar's* Gardiner's Dictionary, 2s.
6d. *Rivington*.

Owen Torlin (Dr.) his Intent of Scripture-
miracles, 2s. *Whiston*.

Orlando Furioso, in Ital. and Engl. 1l. 11s.
6d. few'd, and sold at Mrs. Croker's in
Rupert-street.

Ode to the Prince of Wales, 1s. *Cooper*.

Reflections on theatrical expressions, 1s.
Johnston.

Second Thoughts on War, 1s. 6d. *Cooper*.

Scripture-Account of Sacrifices, 5s. *Batburst*.


State of the British and French colonies, 2s.
6d. *Millar*.

Sharp's Review, and defence of his two
dissertations, part II. and III, 2s. 6d.
Knapton.

Smollet's translation of Don Quixot, 2 vol.
4to, with fine cuts, 2l 10s. *Rivington*, &c.

Tomb of Shakespear, a vision, 6d. *Doddsley*.

EACH DAY's Price of STOCKS, in APRIL 1755.

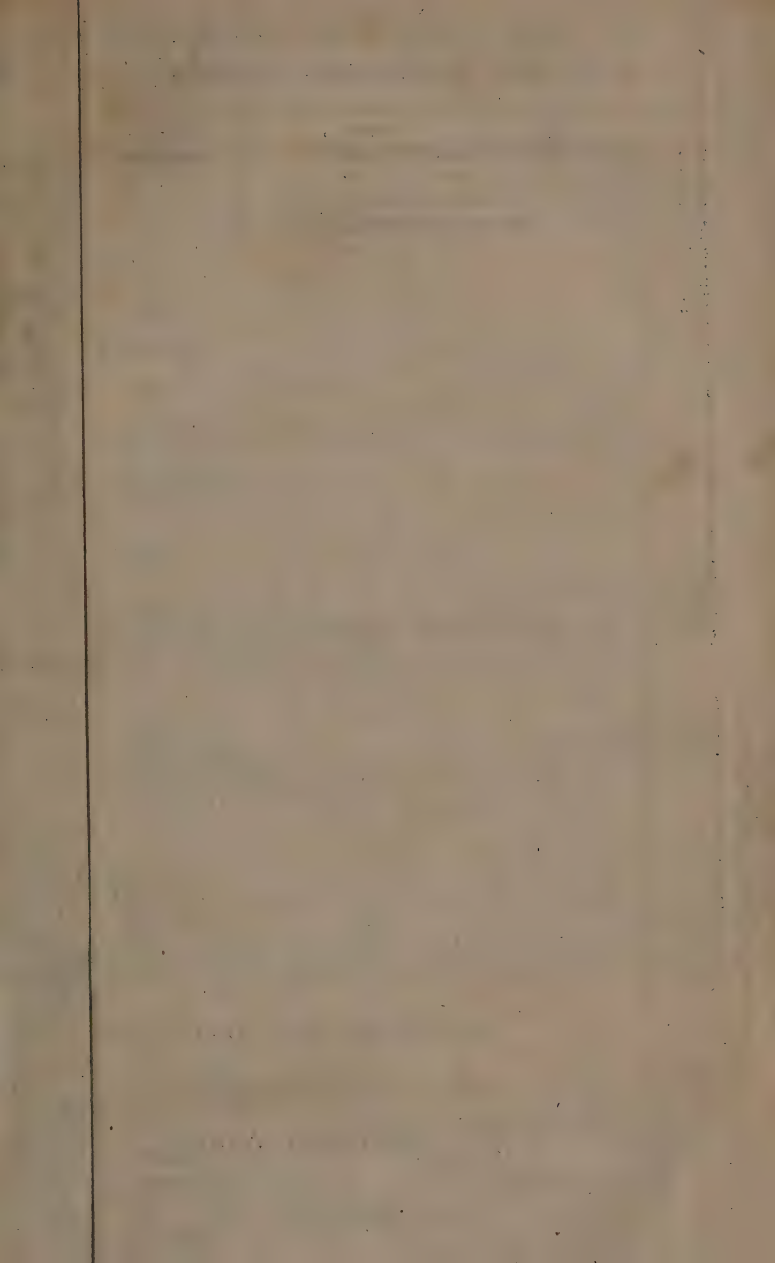
 Books shut, is signified thus,

[illegible]



A Map of the BRITISH and FRENCH SETTLEMENTS in NORTH AMERICA: [Part the second] containing Part of New York, Pennsylvania, New Jersey, Maryland, Virginia, North & South Carolina, Georgia, Louisiana, and all the Countries Westward in the same Parallels so far as Discovered, shewing the Course of the Rivers Ohio, Mississippi &c. exhibiting the just Boundaries & the French Encroachments Laid down from Authentic Surveys.





1 Map of the **BRITISH and FRENCH SETTLEMENTS** in **NORTH AMERICA**; [Part the first] Containing **Canada, Nova Scotia, New found land, New England, part of New York,** with the **Lakes, Six Nations, and all the Countries Westward in the same Parallels so far as Discover'd; exhibiting the just Boundaries, and the French Encroachments: Laid down from Authentic Surveys,**



Miscellaneous Correspondence,

For MAY, 1755.

The ESSAY on the *Usefulness* of MATHEMATICAL LEARNING, continued
from Page 54 of our last.

is another much harder piece of *geometry*, which gun-powder has given us occasion to improve, and that is, the doctrine of projectiles, on which the art of *gunnery* is founded.* Here the geometers have invented a beautiful theory, and rules and instruments that have reduced the casting of bombs to great exactness.

Lastly, navigation, which is made up of astronomy and geometry, is so noble an art, and to which mankind owe so many advantages, that upon this single account those excellent sciences deserve most of all to be studied, and merit the greatest encouragement from a nation that owes to

it both its riches and security. And not only does the common art of *navigation* depend on *mathematics*, but whatever improvements are to be made in *naval architecture*, whether the vessels are designed for merchant-men, or ships of war; whether for swift running, bearing a great sail, or lying near the wind.

Since then it has been shewn, how much *mathematics* improve the mind, how subservient they are to other arts, and how immediately useful to the common-wealth, there needs no other arguments to recommend them to the study of mankind, or any motives to a government to encourage them.

* There has as yet been no true theory of the art of *gunnery* published; that on the hypothesis of the *Parabola* being every way false, and quite an *Opprobrium* to mathematical Philosophy; this great deficiency we shall endeavour to supply, by a new theory of Projectiles, founded on the most certain principles of Philosophy, and plainest demonstrations of geometry; when we come to treat of this necessary art in the course of our institutions.



A clear and succinct Account of NORTH AMERICA, Historical, Geographical, &c. so far as it respects the Arguments of the present Time, done from authentic Records, and the best Relations extant.

THE best writers agree in calling that country *North America* which extends from the *Isthmus of Panama*, in the Latitude of $8^{\circ} 30'$ North, and as the same is now divided between *Great Britain*, *France* and *Spain*; claiming under their respective discoveries.

As to what regards *Great Britain*, or more properly *England*, in particular, and upon which our claims are founded, our rights proposed to be established, owe their be-

ing in the first place to the discovery of the *Cabots*, in the latter end of the 15th century, about the years 1496 and 1497, and more assuredly to the several grants from the crown, and the respective settlements in consequence made therein.

The discovery of the *Cabots*, according to the accounts of the generality of our own writers, extends only from the latitude of 38° to 68° , including the great island of *Newfoundland*, and other lesser islands on the coast of

the continent within those latitudes, and the *Spaniards* generally pretend that such are the utmost bounds of our discoveries; but we find that even some of their most early historians are less partial, in particular *Anthony Gotoano*, governor of *Ternata*, one of the *Molucca* islands, in a history which he wrote, of discoveries about the year 1550, admits it to be the common opinion, that the *Cabots* discovered as far southward as *Cape Florida* in the latitude of 25. And the best *French* authors seem clearly of the same opinion, who, speaking of a previous pretended discovery of *John Ponce de Leon*, a *Spaniard*, in 1512, *Tbuanus* says, it is more certain what many affirm, that *Sebastian Cabot* had been there 15 years before; and *Richelet*, who published a translation of the history of *Florida* from the *Spanish* in 1709, in his notes thereon, expressly agrees with *Tbuanus*; so that as to matter of discovery, our claim seems undoubted from the latitude of 25 to 68, as before mentioned. And *Peter Martyr*, from *Cabot's* own relation, says, that he was in the gulph of *Florida* south of the cape, having the island of *Cuba* on his left hand.

The point then of our right by discovery being out of the question, it falls next under consideration what we claim against other *Europeans*, by the right of settling under such discovery, and this will gradually lead us into the history and geography of this extensive tract.

The first attempt we meet with was by *Sir Humphry Gilbert*, under letters patent from queen *Elizabeth*, dated the 11th of *June* 1578, but which, through various disappointments were retarded to 1583, when, being joined by several persons of distinction, he sailed to *St. John's* harbour in *Newfoundland*, of which having taken formal possession, and made several grants of the adjacent country, he stood away for the more southern parts of *America*; where, after having met with many interruptions and disappointments, he was, in his return home, by his vessel foundering, lost at sea.

Sir Humphry was the half brother of *Mr. Walter Raleigh* by the mother's side, who, on *Sir Humphry's* misfortune, obtained letters patent from the queen, of the like import as his brother's, dated *March* 25, 1584, and under that sanction, and in concert with *Sir Richard Greenville* and others, his friends and relations, fitted out two small vessels and sent them to sea under the command of captain *Phillip Amidas* and *Arthur Barlow*, the first a seaman, the other a land-officer. They left *England* in *April* 1584, and taking an unaccountable circuit round by the *West-Indies*, on the 2d of *July*, fell in with the coast of *Florida*, from whence coasting north-

ward about 120 miles, they happened on a convenient harbour, in an island of about 15 miles in length and six in breadth, situate between cape *Hatteras* and cape *Fear*, supposed to be that now called *Ocacoe*. Here they found *Indians* and good refreshment, when after a mutual intercourse of civilities, and having made some slight discoveries up *Albemarle Sound*, about the middle of *September* they returned safe to *England*; bringing with them two of the *Natives*. This discovery, and the fine account they gave of the richness, plenty, and beauty of the country gave the queen so much satisfaction that she named it *Virginia*.

Mr. Raleigh, tho' not actually on the voyage himself, was on this occasion, and for other his distinguished merits, knighted; and having procured his patent to be confirmed in parliament, with the addition of a proviso, and the advantageous account of this country having elated the spirits of his co-adventurers, induced *Sir Richard Greenville* to make the next voyage in person; he sailed from *Plymouth* the 9th of *April*, and fell in with cape *Fear* the latter end of *May*; when, after many transactions and discoveries, and leaving behind him 108 persons, on the island *Roanoke*, at the mouth of *Albemarle Sound*, under the government of *Mr. Ralph Lane*, a military man of note, and capt. *Phillip Amides*, returned the same year to *England*.

This first settlement, after various adventures were reduced to very great distresses, when they were luckily relieved by *Sir Francis Drake*; who, on his return from the taking of *Cartagena*, was especially directed to visit this colony, and to give them all necessary assistance and encouragement, who proposed to have left with them some small vessels, 100 men and four months provisions; but various accidents occurring, and the settlers wearied with distresses, and desirous to be at home, *Sir Francis* took them aboard; and so this attempt towards a settlement proved abortive. *Sir Francis*, in his way, touched on the coast of *New England*, where he staid a few days, trading with the natives and surveying the country, and where one of the *Indian* chiefs made a formal submission to queen *Elizabeth*.

Mr. Lane and his company carried home some tobacco, the first *Mr. Campden* thinks brought into *England*. *Sir Walter Raleigh*, then in high vogue, and much esteemed by the gay, as well as gallant world, soon brought this odoriferous plant into such esteem, that many great ladies, as well as noblemen, made no scruple, sometimes, to take a pipe; and which the political

litical queen did not fail to encourage, and some say, used it herself.

In the interval of Sir *Francis Drake's* voyage home, with the settlers on board him, Sir *Walter* had dispatched one ship, Sir *Richard Greenville* in person, with three ships, were failed to the relief of the colony; but the immature departure of the settlers having blasted their auspicious views, Sir *Richard*, resolving not to abandon the country, left, on the island *Roanoke*, 50 persons with two years provision, and then returned to *England*.

In 1587 three ships were dispatched under the command of Mr. *John White*, under Sir *Walter's* patent, and expressly directed to settle at *Chesapeake* on the continent. On their arrival they went to *Roanoke*, to look for the 50 men left there; but none were found, and all the information they could obtain on the most scrupulous enquiry was, that they had been attacked by 300 Indians, in which one *Englishman* was slain, and the rest gone they knew not whither.

The same year Mr. *White*, at the desire of the colony, returned to *England* to solicit supplies, at that unlucky time, when the whole nation was preparing for their defence against the intended *Spanish* invasion; however, Mr. *White* obtained two vessels, but was intercepted by the enemy, and was obliged to return back; and Sir *Walter* being now deeply engaged in the public service, made an assignment of his interest to Mr. *Thomas Smith*, after Sir *Thomas*, to the said Mr. *White*, and to other merchant-adventurers, and presented them at the same time with 100*l*.

These new adventurers delayed sending relief to the colony until *March* 1589-90, when Mr. *White* sailed with three ships from *Plsmouth*, and arrived on the coast the 3d of *August*; but not finding any of the people left there, they returned to *England*.

The year following, Sir *Richard Greenville* being slain in an engagement with the *Spaniards* at the *Western isles*, and Sir *Walter Raleigh* in disgrace with the queen, for causes not pertinent here, and his assignees proving totally negligent, the settlements were entirely abandoned, and the settlers left to their fate.

In *March*, 1602, *Bartholomew Gosnold* failed from *Dartmouth*, in a bark with 32 men, and, in *May*, fell in with that part of the *American* coast now called *New England*; and making some slight discoveries returned home.

In 1603, the mayor, aldermen, and merchants of *Bristol*, at the request of Mr. *Hackluit*, a prebendary of *Westminster*, fitted out two vessels, but following *Gosnold's* course, made no significant discoveries.

Captain *Gilbert*, the same year, made a voyage to *Virginia*: They reached *Chesapeake* bay, where the captain and four of his men being killed, the ship returned.

In 1605, Captain *George Weymouth* was sent by the Earl of *Southampton*, and Lord *Arundel* of *Wardour*; he intended to the southward of 39, but was, by the North-west winds, forced among some shoals in the latitude of 41; on the 18th of *May*, they made land, being an island on the coast; after some time searching, they fell in with the main land, and sailed several leagues up a river, supposed to be *Connecticut*; when after viewing the country, and having some intercourse with the *Indians*, they sailed for *England*, and arrived at *Dartmouth* the 18th of *July*.

Thus far the reader has been only entertained with attempts and disappointments, but no other nation, during this course, in any sense intervened. These slight sketches have been given to evince our previous claim to this coast, which until many years after passed entirely by the name of *Virginia*; and as, for the future, these adventures wore a more encouraging aspect, tho' subject to various mishaps and discouragements, we shall proceed to touch as lightly as possible such future attempts as occur until the more firm settling of the respective colonies, before we can possibly give a clear and explicit account of our rights and interests in *America* exclusive of all other nations whatsoever, and then shall state the geography, topography, and natural history in the fairest, and most perfect light, that candor, intelligence, and the best accounts extant, can make us capable of effecting.

(To be continued.)

Observations on the Lunar Eclipse, March 27, 1755.

Observed at London, by T. L.

AT 11^h 12' apparent time (by a four foot Refractor and corrected Clock) the Moon was just touched by the Shadow; after which, Clouds interposed, and no farther observations could be made.

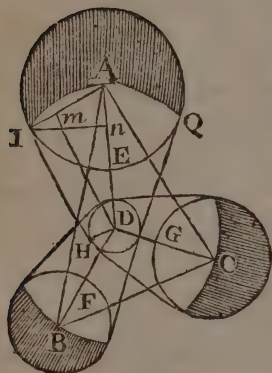
The same observed at Milverton, in Devonshire.

By Mr. SAMUEL KINGDON.

A Pparent time, 1755, March 27^d 11^h 4' (before which time the Moon was obscured by Clouds) the Eclipse had been on some minutes, 13^h 20' 34" the sea Eatremus (at one end of mount Taurus) emerged; 13^h 33' 38" the Eclipse ended; 13^h 35' 48" the penumbra was quite off the Moon's disk. The time was obtained by correspondent altitudes of Arcturus, Capella, and Pollux (in the intervals of flying Clouds) at the time of the Eclipse.

MATHEMATICAL QUESTIONS Answered.

Question 5, answered by the Proposer.



IT is evident that the luminous body must be between the other three. Let A, B and C represent the three opaque balls, and D the luminous one; for their semi-diameters put e, f, i and d ; draw Dm parallel to HI ; let $e - d = q = Am$, $f - d = r$, and $i - d = s$, and put $x = AD$, $y = BD$, $z = CD$. By sim. $\triangle s$, As $x : q :: e : \frac{qe}{x}$

$= An$, hence $\frac{ex - eq}{x} = En$, and $\frac{ex - eq}{x} \times 2e \times 3.1416 = IEQ$, the enlightened part of the ball A. In like manner, we get $\frac{fy - fr}{y} \times 2f \times 3.14156$, and $\frac{iz - is}{z} \times 2i \times 3.1416$ for the balls

B and C, the sum of which is a maximum. In Fluxions, $\frac{e^2 q \dot{x}}{x^2} + \frac{f^2 r \dot{y}}{y^2} + \frac{i^2 s \dot{z}}{z^2} = 0$. Let $x + y + z = w$, and $\dot{z} = -\dot{x} - \dot{y}$, which put for z in the equation above, reduced, &c. $\dot{x}^2 = \frac{i^2 s x^2}{e^2 q}$, $\dot{y}^2 = \frac{f^2 r z^2}{i^2 s}$ and $\dot{x}^2 = \frac{e^2 q y^2}{f^2 r}$. Or, let $z = nx$, $y = mz$, $x = py$. Now, if $AB = a$, $BC = b$, and $AC = c$, we may have the angle ACD , and the angle BCD (We see no reason for this conclusion, as the values of x, y , and z are yet undetermined.*) Hence, if the diameters of the dark balls = 3, 5 and 4, and 4, 5, and the diameter of the luminous one = 1; also $AB = 15$, $BC = 16$, and $CA = 17$, we have $AD = 7.4022$, $BD = 9.2678$, and $CD = 11.2602$.

W. BEVIL.

* T. L. having given the investigation of this problem from AB, BC, AC , and the four semi-diameters of the balls; we refer, for a determination of this point, to our correspondents.

Question 6, answered by Mr. JOHN ASH.

PUT a = tension at D, $m = AD$,
 $n = AP$, then by the property
 of the catenary, $n = a \times \text{hyp. log.}$

$$\frac{a + m + \frac{2am + m^2}{2a}}{a}, \text{ hence } a =$$

19.027.

Assume $x = Dq$, $y = pq$, and $z =$
 Dp , then $y = \frac{az}{a+x}$, and $\dot{x} = \frac{zy}{a+x}$,

$$\therefore \frac{y \dot{x}}{y} = \frac{zy}{a} = Fq. \text{ Again } \frac{zy}{a}$$

$$: y :: m - x (Aq) + \frac{zy}{a} : \frac{zy + am - ax}{z}$$

$$= AE, \therefore \frac{zy + am - ax}{z} \text{ will represent the minimum respecting the}$$

triangle, and $\frac{zy + am - ax}{z}^3$ that respecting the cone. The first of these

two expressions fluxed, made $= 0$, and reduced, gives $yz = am - ax$. For

x and y substitute their values $\frac{z^2 + a^2}{2a} - a$, and $a \times \text{hyp. log. } \frac{z^2 + a^2}{2a} + z$

and it will become $z + \text{hyp. log. } \frac{z^2 + a^2}{2a} + z + \frac{z^2 + a^2}{2a} = m - a$.

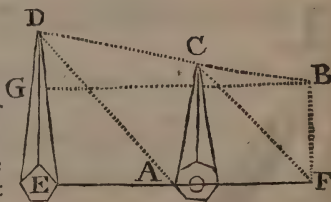
From which z comes out $= 32.18$, $x = 18.357$, $y = 24.666$, and the area
 of the least triangle circumscribing the whole catenary $= 4116.1154$.

Proceeding after the same manner, the dimensions and solidity of the great-
 est Cone may be also determined.

Question 7, answered by Mr. JOHN THORPE, of Woodborough, near
 Nottingham.

BY the data, and *per spherics*, the Sun's
 altitude was $52^\circ 6'$, and the time 10^h
 $35'$, at the observation, May 21, 1754; the
 altitude $13^h 4'$, and time $9^h 42'$, at the ob-
 servation, Feb. 3, 1755. By the nature of
 regular polygons, and *per question*, the ra-
 dius of the octagonal pyramid is found to be
 76.8 Inches, and its perpendicular height
 622.97 Inches. Let DA and CB be the di-
 rections of the shadows at the time of observation, and let X be a point where

EF and DB meet each other on the horizon. There are given the angle
 $CXO = \text{angle } DBG = 13^\circ 4'$ and $CO = 622.97$ Inches, whence $XO =$
 2684.12 Inches, to which if AO be added, we have $XA = 2760.92$. In
 the oblique angled triangle X(F)AD, the angle at X, as before, is $= 13^\circ 4'$,
 the angle X(F)AD $= 127^\circ 54'$ and the side XA $= 2760.92$, whence AD $=$



991.15 Inches. Lastly, the angle EAD is given $= 52^{\circ} 6'$ and $AD = 991.15$, from whence $ED = 782.1$, and $AE = 608.84$.

Hence $\left\{ \begin{array}{l} \text{The perpendicular height of the octagonal pyramid} = 622.97 \text{ Inches} \\ \text{pentagonal pyramid} = 782.10 \\ \text{Central distance} \text{ — — — — — } = 685.64 \end{array} \right.$

N. B. The slant height of the octagonal pyramid is supposed to have been taken from the middle of one of the sides.

Answered by Mr. J. HORSFALL.

ON *May 21, 1754*, having given the latitude, declination, and azimuth, as in the question, his altitude is found $= 52^{\circ} 4'$, and the time $10^h 35'$. On *Feb. 3, 1755*, having the same data, the altitude is found $= 13^{\circ} 8'$, and the time $9^h 43'$ *mane.* *Yds. In.*

An octagon whose slant height is $17 \ 15$, and periphery at base $\frac{3}{4}$ of the *Yds. In.*

same, will have $= 17 \ 9$, periphery, height, and the radius of its circumscri- *Yds. In.*

bing circle $= 2 \ 5$. By plain Trigonometry, As tangent $13^{\circ} 8' : 17 \ 9 ::$ *Yds. In.*

Radius : $73 \ 34 = OX$. (Supposing X the point where the rays, passing by *Yds. In. Yds. In. Yds. In.*

D and C , meet the horizon EF produced) Now, $73 \ 34 + 2 \ 5 = 76 \ 3$ *Yds. In.*
 $= OX$, from which and the two angles $X(B)DA$ and $D(B)XA$, per
 plain Trig.

ED the height of the pentagonal pyramid is found $= 21.5$

OE the central distance — — — — — $= 19.2$

This question was also methodically and truly answered by Mr. Thomas Bowen and Mr. Carter of Clanfield.

Question 8, answered by R. E. Henley, Oxon.

LET the given fraction $= \frac{ac}{bc}$; and if the Number required was $= bc$,

Then $\frac{abcc}{bc}$ would be a whole $N^{\circ} = ac$. But $\frac{abc}{bc}$ will be a less whole $N^{\circ} =$

a . And since $\frac{ac}{bc} = \frac{a}{b}$, and a , and b , are prime quantities, therefore the N° sought will be always equal to the denominator of the lowest term of the given fraction.

Answered

Answered by Mr. THOMAS BOWEN, of Bristol.

IT being, As the denominator of any fraction : to its numerator :: so is the denominator of any other fraction equal in value to the former : to its numerator ; the least whole number that will answer the condition of the question, is the denominator of the fraction proposed, reduced to its lowest terms.

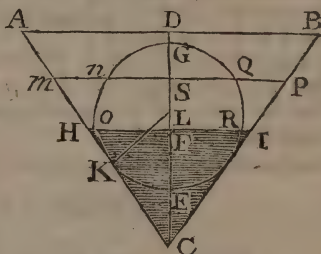
The Proposer's Answer.

LET $\frac{ny}{dy}$ = the given fraction, or any value thereof in lower terms, = $\frac{n}{d}$ in its lowest terms, and d is the number required. For if n be so small as unity, the required number cannot be less than d , and if n be greater than unity (putting x = required number) nx cannot exceed d , or dy . Now, when $n = 1$, x is = d ; and when $\frac{ny}{dy}$ is in its lowest terms = $\frac{n}{d}$ (putting z for any other number greater than x , and not xy) $z \times \frac{n}{d}$ will leave some remainder; wherefore when x or $z = d$, that will be the number required.

This question was answered arithmetically by Mr. B. Webb, and Mr. David Kennebrook, without demonstration. Also by J. W. of Baldock.

Question 9, answered by Mr. CHARLES DYER of Deptford.

SUPPOSE ABC the glass, HI the surface of the liquor when a quarter full, and GKEG the round ball therein. Now it is plain by the figure, that the liquor will be raised above the surface HI, as much as the ball is depressed in solidity below the surface HI, which, by the question, must be greatest, or a maximum, but the liquor which is raised will be contained all round between the ball and glass, supposing between $mnHO$, $PQIR$.



Then let $a = CF$, the height of the liquor when a quarter full, and \overline{CD}^3 : solidity ABC, as \overline{CF}^3 : solidity HIC. That is, as $27 : 12,5664 :: a^3 : 3,1416$; whence $a = \sqrt[3]{6,75} = 1,88988$. Again: Let $x = KL = GL = EL$, and $b = AD = 2$, $c = AC = 3,60555$; then $b : c :: x : \frac{cx}{b} = CL$, and $\frac{cx}{b} - x = EC$. Let $\frac{c}{b} - 1 = d = ,802775$, then $a - dx = EF$. But

$3 GE \times \overline{EF}^2 - 2 \overline{EF}^3 \times ,5236 = \text{solidity OER. Per Ward's Theorem.}$
That is, $\overline{ba^2x - 12 adx^2 + b^2d^2x^3 - 2a^3 + b^2a^2dx - bad^2x^2 + 2d^3x^3} \times ,5236 = \text{maximum.}$ In Fluxions, and reduced, $d^3x^2 + 3d^2x^2 - 4adx - 2ad^2x = -a^2 - da^2$. Let $3 + d \times d^2 = b$, and $2 + d \times ad = k$, and

and $\sqrt{1+d} \times a^2 = g$, then $x^2 - \frac{2kx}{b} + \frac{k^2}{b^2} = \frac{k^2}{b^2} - \frac{g}{b}$ and $x = \frac{k}{b} -$

$\sqrt{\frac{k^2}{b^2} - \frac{g}{b}} = 1,11604286$, the radius of the ball.

So that the diameter is 2,2320857; but to find how high the liquor will rise on the side of the glass, will admit of another question. To proceed: Let $y = ES$, $a = EC$, $c = ,7854$, and x as above; then \overline{CD}^3 : solidity $ABC :: \overline{CS}^3$: solidity MPC ; but the solidity MPC , less the solidity $HIC =$ solidity $MPIH =$ solidity $NQEN$, *per* question; that is, $27:125664 :: a^3 + 3a^2y + 3ay^2 + y^3 : ba^3 + 3ba^2y + 3aby^2 + by^3 =$ solidity MPC , and $4c =$ solidity HIC .

Then $ba^3 + 3ba^2y + 3bay^2 + by^3 - 4c =$ solidity $MPIH = NQEN$; but $3GE \times \overline{ES}^2 - 2\overline{ES}^3 \times ,5236 =$ solidity $NQEN = \overline{bx}y^2 - 2y^3 \times ,5236$; then $ba^3 + 3ba^2y + 3bay^2 + by^3 - 4c = \overline{bx}y^2 - 2y^3 \times ,5236$: This equation reduced is $3,25y^3 - 4,8455y^2 + 2,408073y = 6,030845$; and by series $y = 1,698104$, then $CS = 2,594034$, and CM or $CP = 3,11764$, the height of the liquor on the side of the glass.

W. W. D.

Question 10, answered by Mr. BAMPFIELD, of HONITON.

BY Fluxions, the center of percussion (which is the place where the staff will give the greatest blow) is $= \frac{2}{3}$ of its length from the end, $\therefore BH = 26.666$, and $AB = 13.333$; and 'tis obvious that BC must be $= AB$, to give an equal blow, because equidistant from the center of the greatest power, $\therefore CH = 13.333 =$ the required distance from the hand.

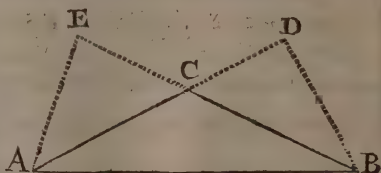


New QUESTIONS to be answered.

Question 21. By Mr. G. MURRANT of Darlington.

THere is a triangular field ABC , whose base is 360 yards, and if the side BC be continued 'till the $\perp AE$ falls thereon, the area will be increased 6440 yards; but if AC be continued 'till $\perp BD$ falls thereon, the area will be increased 6600 yards.

Quere, the sides and area of the field.



Question 22. By T. L.

Given $x^y + y^{\frac{y}{x}} = 5000$, and $y^x + x^{\frac{x}{y}} = 2000$, Quere x and y ?

A VOYAGE to the PLANETS.

By the Rev. Mr. FAWKES,

SAY, what uncommon cares disturb my
rest,
And kindle raptures foreign to my breast:
From earth's low confines lift my mind on
high,
To trace new worlds revolving in the sky.
Yes—I'm impatient of this orb of clay,
And boldly dare to meditate my way,
Where Fontinelle first saw the planets roll,
And all the God tumultuous shakes my soul.
'Tis he! He comes, and thro' the sun-
bright skies
Drives foaming Pegasus, and thus he cries:
"Cease, cease, dear youth, too studiously
employ'd,
And wing with me the unresisting void;
'Tis thine with me round other worlds to
soar,
And visit kingdoms unexplor'd before;
While I succinctly shew each various race,
The manners and the genius of the place."
I (tho' my mind, with lively horror fraught,
Thinks on Bellerophon, and dreads the
thought)
Mount quick the winged steed; he springs,
he flies
Fleet thro' the liquid azure of the skies.
—First, Mercury, swift circling round the
Sun,
We reach, when thus my friendly guide be-
gun:
"Mark well the genius of this fiery place,
The wild amusements of the brain-sick race,
Whose minds the beams of *Titan*, too intense,
Affect with frenzy, and distract the sense.
A monarch here gives subject-princes law,
A mighty monarch, with a crown of straw.
Here the lone lover, on the cieling bare,
With charcoal paints his *Chloe* heav'nly fair:
In sadly-soothing strain rude notes he sings,
Or grates harsh discord from the jarring
strings.
Lo! an astrologer, with filth besmear'd,
Rough and neglected, with a length of beard,
Pores round his cell for undiscover'd stars,
And decks the wall with triangles and squares.
Lo! — But the radiant car of *Phæbus* nigh
Glow with red ardour, and inflames the
sky —
Oh! waft me, hide me in some cool retreat;
I droop, I sicken with the fervent heat."
Thence to that milder orb we wing our
way,
Where *Venus* governs with an easy sway:
Soft breathes the air; fair *Flora* paints the
ground,
And fruitful *Ceres* deals her gifts around,

This blissful Tempe no rough blasts molest,
Of blust'ring *Boreas*, or the baleful east;
But gentle Zephyrs o'er the woodlands stray,
Court the tall trees & round the branches play,
Their genial gales dispensing as they flow,
To fan those passions which they teach to
glow.
Here the gay youth in measur'd steps ad-
vance,
While sprightly music animates the dance;
Here the soft sounds of melody inspire,
Sighs to the song, and languors to the lyre:
Fair nymphs and amorous youths, a lovely
band, [hand.
Blend in the dance, light-bounding, hand in
From ev'ry grove the buxom Zephyrs bring
The rich ambrosia of eternal spring.
Care dwells not here their pleasures to de-
stroy,
But laughter, jest, and universal joy:
All, all is love; for *Venus* reigns confess
The sole Sultana of each captive breast:
Cold *Cynthia* here wou'd *Cupid's* victim
prove, }
Or the chaste daughter of imperial *Jove*, }
And rigid *Cato* be the slave of love.
Now thro' the destin'd fields of air we fly,
And leave those happy mansions with a sigh:
Thence the dire coast we reach, the dreary
plains,
Where *Mars*, grim god, and bloody discord
reigns.
The host in arms embattled sternly stands,
The sword, the dart, the dagger, in their
hands.
Here no fair nymphs to silver sounds advance;
But buskin'd heroes form the Pyrrhic dance;
And brazen trumpets terrible from far,
With martial music fire the soul to war.
Here mourns the lonely bride, her husband
fled,
The sterile nuptials, the deserted bed,
Sighs the long nights, and, frantic with de-
spair,
Beats her bare breast, and rends her flow-
ing hair:
In vain she sighs, in vain dissolves in tears—
In sleep perhaps the warrior-lord appears,
A fleeting form that glides before her sight,
A momentary vision of the night.
Meanwhile, regardless of her tender woe,
The hardy husband rushes on the foe;
Our ears the clang of ringing armour rends,
And the immortal battle never ends.
Hence thro' the boundless void we nimbly
move,
And reach the wide extended plains of *Jove*.
M. Here

Here the stern tyrant sways an iron rod ;
 A thousand vassals tremble at his nod.
 How short the period of a tyrant's date !
 The pois'nous phial speeds the work of fate :
 Scarce is the proud, imperious tyrant dead,
 But, lo ! a second lord's it in his stead.

Here peace, as common merchandize, is sold,
 Heav'n's first best blessing for pernicious gold :

War soon succeeds, the sturdy squadrons
 stand

Wide o'er the fields, a formidable band ;
 With num'rous fleets they croud the groan-
 ing main,

And triumph for the victories they feign :
 Again in strict alliances unite,

*Till discord raise again the phantom of a
 fight ;

Again they fail ; again the troops prepare
 Their falchions for the mockery of war.
 The son inhuman seeks his father's life,
 The slave his master's, and her lord's the
 wife.

With vengeance thus their kindling bosoms
 fire,

Since *Jove* usurp'd the sceptre of his fire.
 Here frauds, bribes, poisons, perjuries be-
 tray,

And thirst of gold, and avarice of sway.

At length we land, vast fields of æther
 crost,

On *Saturn's* cold, uncomfortable coast ;
 Here in the gloom the pamper'd sluggards
 lull

The lazy hours, lethargically dull.
 In caves they live : were sluggards ever
 known

To raise a citadel, or build a town ?
 The same stupidity infects the whole,
 Fix'd in the breast, and center'd in the soul.
 These never feel th'ambitious fires of *Jove*,
 To industry not *Mercury* can move,
Mars cannot spur to war, nor *Venus* wooe
 to love.

Here rove those souls, 'tis said, when life
 departs,

Who left uncultivated useful arts ;
 But stupify'd with plenty and repose,
 Dreamt out long life in one continu'd doze.
 No feather'd songsters, with sweet-warbled
 strains

Attune to melting melody the plains ;
 No flocks, no herds here feed in pastures
 wide ;

No fountains musically murmur'ring glide ;
 Th' ungenial waste no tender herbage yields ;
 No harvests wave luxuriant in the fields.
 The woods, if woods there be, lie, leafless, low
 Beneath bleak mountains of eternal snow.
 Dull animals inhabit this abode ;
 The owl, mole, dormouse, tortoise, and the
 toad.

Dull rivers roll within their channels deep,
 And only feed the poppy as they creep ;
 Whose stagnant fumes, and dozing draughts
 invite

Perpetual slumbers in perpetual night.

Aghast I stood, the drowsy vapours lull
 My soul in gloom, ev'n *Pegasus* grew dull.
 My guide observ'd, and thrice he urg'd his
 speed,

Thrice the loud lash refounded from the
 steed ;

Fir'd at the strokes, he flies with slacken'd
 rein

Swift o'er the level of the liquid plain,
 Glides with the gentle gale, and lights on
 earth again.

To a young LADY, attending Mr. MAR-
 TIN's *Lecture on Air*, in which a Lark
 was put into the Receiver, and the Air
 exhausted, but was redeemed from death
 by her Request.

I.

Clarinda, my enchanting fair,
 You know that life depends on air ;
 As without *Sol's* prolific rays,
 No rose, or flow'r the fields would grace.

II.

You saw the lark, poor harmless thing,
 With blithsome eye, and flutt'ring wing,
 Soon change, and on the verge of death,
 Panting in vain for succouring breath.

III.

You saw, and your request restor'd
 The needful fluid to the bird :
 Then shall he spend his future days,
 To sing his benefactor's praise.

IV.

An emblem here observant find,
 Of beauty's empire o'er the mind :
 As air to birds, to fish the sea,
 Supporting are your smiles to me.

V.

Are these withdrawn, I find with grief
 The world can yield me no relief :
 Are these restor'd, no woe I feel ;
 Susceptive of no other Ill.

VI.

Then let that passion for me plead,
 Which rose to give the songster aid ;
 So shall my lyre unceasing found,
 The nymph, as angels fair, is kind as angels
 found.

To Mr. MARTIN.

SIR,

BY inserting the under-written Soliloquy 'in
 your next Magazine (if you have room)
 you will oblige

March

Your constant reader,

W. W—TY.

ELEGY on a Lady in a Monastery.

HAVE pity, ye shepherds, and hear me complain,
Complaint is my only relief;
O! give me by sorrow to wash away pain,
By song to anticipate grief.
Ah! wherefore was *Laura* so beautiful made?
Yet made like a star in the sky,
To have her bright lustre at distance survey'd,
Admir'd but never come nigh.
And why was she made like the radiance of light,
To cherish all life by her ray?
And yet, by religion eclips'd from the sight,
Not permitted to out-shine the day.
Have pity, ye shepherds, and hear my fond tale,
O! hear me and join my complaint;
For why should such virtue be hid by the veil?
Ah why, when already a saint?
The dew on the grass did not shine like her eye;
The rose did not blush like her cheek;
The breath of the morn was not soft as her sigh;
As her temper the lamb not so meek.
On the high mountain-top snow was not so white;
The swan as her bosom so fair;
The jet not so black, nor the mirror so bright;
As the black and the gloss of her hair.
Than the coral's bright colour her lips were more red,
More soft than the plum or the peach;
Good-nature gave tongue to each word that she said,
And *music* gave voice to her speech.
That such was my *Laura*, ye shepherds, confes,
And have I not cause to complain?
Condemn'd to desire, but never possess,
To adore what I cannot obtain.

6th May, 1755.

N. B. We have omitted Shakespeare's Speech to Mr. H——t, as it will undoubtedly give Offence to those Gentlemen now living whose Names are mentioned therein.—Some other ingenious Pieces we have also omitted for Want of Room, but they will be inserted according to the Priority of their Dates.

EPIGRAM on a proud rich Man.
By a Lady.

EXult not so, proud breathing clay!
Forgetful that thou borrow'st all:
Remember, there must come a day,
When he, who lent thee, will recal.
Then tremble, that thy blessings past,
Have been unthankfully enjoy'd:
They were no more design'd to last,
Than to be basely misemploy'd.

A SOLILOQUY on Death.

TO die is to be robb'd of ev'ry sense,
To drop from life into a heap of clay,
To rot and pulverize, and shrink to nought.
This much we know—this dying nature teaches.
The lifeless trunk, the dust-corroded urn,
The sacred grave, and the sepulchral stone,
And hollow vault this doctrine do confirm.
But oh! where flies that being, call'd the soul,
Of heavenly formation, that exists
To perpetuity, that breath of God,
Which, when enclos'd in man's corrupted flesh,
Bestows the pow'r, and faculty of thought?
Oh! thou mysterious death! tremendous name!
And thou her sister, dread eternity!
To you I speak. Oh! say, are we to float
On blissful oceans in hereafter hours,
Or steer our barks across the Stygian gulf,
To where grim *Pluto* wrapt in horror sits,
And knits his brows into a ghastly frown?
Ah! why do I invoke these sister twins
To name that secret, which mortality
Corruptible, and frail, must never hear?
As yet no mortal knows, but by conjecture:
The vast, th' extensive philosophic search
Is fruitless all, and puzzling to the will.
Rest here the strict, the great, presumptive search;
For countless, incoherent doubts arise;
Thought presses thought, in one perplexing round,
And horror stupifies inquiring sense.

The Method of taking off IMPRESSIONS from MEDALS with Isinglass.

WE shall here communicate what we think the best method of taking off the impressions of medals, which is done with Isinglass, or Fish-glue, in the following manner. Take an ounce of Isinglass, beat it in a mortar; then pick it into small pieces and put them into a half pint phial, and then

fill it up with a spirituous liquor: *commo brandy*, or *geneva*, is what we generally use; put a cork into the phial, with a notch cut in one side of it for a passage for air, and set it by a fire for three or four hours, shaking it often in that time; (the heat should be great enough to keep it near boiling

ing all the while.) The Iſinglaſs will then be ſufficiently diſſolved, and the whole muſt be poured into a cloath, and ſtrained off; it is then to be put into a clean phial, well corked, and kept for uſe.

When you propoſe to uſe it, take the glue and ſet it by the fire; and it will ſoon liquify, or become fluid; then, having made the medal clean, and placed it quite level, pour on ſo much of the Glue as will cover it all over, and lie without running off. You then let it ſtand to dry; which, in the ſummer-time, and dry weather, will be in *one day*; at other times it will take near *two*: when it is quite dry, it is ſcarcely ſeen on the medal; and muſt be taken off, by entering the point of a penknife under one ſide, and it will eaſily riſe off the medal in a clear, transparent, and perfect reſemblance of the whole, and every the minuteſt part of it.

It may be coloured at pleaſure; *yellow*, with *saffron*; *green*, with *verdigrife*; *crimson*, with *cochineal*, &c. but we think they look beſt when quite colourleſs.

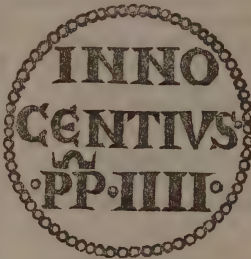
Alſo, when the Glue is firſt poured on, if you drop over it a piece of *leaf-gold*, or *ſilver*, they will become gilt with thoſe metals in the moſt perfect and beautiful manner. — This Glue is not only applicable to the purpoſes above-mentioned, but is extremely uſeful in gluing all kinds of *hard wood* (which common glue will not touch);

yea, even glaſs and china-ware, when broke, may be joined together again ſo very ſtrong as to ſerve for any common uſe, nor is the joint in china viſible, if dexterouſly put together. And we know, by experience, that a tea-cup, thus put together, will endure the boiling water the uſual time of drinking tea; but as ſoon as it is done with, it muſt be wiped dry.

We ſhall only take notice farther, that this method may be of the greateſt ſervice to the *Antiquarian*; becauſe he can hereby take off the true *antique figure* of his medals, and tranſmit as many of them as he pleaſes to his friends at a diſtance, by letter. Of this we had a curious inſtance of the impreſſions from a *Bulla* of Pope *Innocent III.* lately found near *Dover*; this is a kind of ſignet, ſtampt in lead, and appended to thoſe writings, or inſtruments of the Popes, which, from thence, are called *Bulls*. We thought to have gained an *Icon* a little more like the thing, but the workman (who is allowed to be the beſt in his way) has uſed the utmoſt art to repreſent it; and which therefore we hope will be acceptable.

The abbreviation SPASPE, we ſuppoſe, ſtands for *Sanctus Pater, Sanctus Petrus*; i. e. Holy Father, and St. Peter, the two faces on the medal.

Something farther on this ſubject we may give in a future Number.



N. B. As perspicuity in the sciences is what we principally aim at, and without which no progress can be made in the study of them; we shall always think ourselves greatly obliged to our readers, if they shall please at any time to signify to us what they think not sufficiently explained, and we will endeavour to make it intelligible. — Therefore, as it is desired to know, what is meant by Rev. in the two last Examples of *Inst. 41.* in page 11. of arithmetic, we answer; that Rev. stands for Revolution; by which is meant the motion thro' a compleat Circle, or the motion of 360 Degrees,

Rev. Sg.

(see *Inst. 40.*) Hence 175 10 28° 51' 42" signifies, that the Sun or Moon, &c. has made 175 Revolutions thro' the Ecliptic, and is advanced 10 Signs, 28 Degrees, 51', and 42" towards another; and so of the rest.

Mr. T. Rider's curious account from Staffordshire, shall be inserted when we come to that county.

ER-

ERRATA in N^o. IV. Natural History, page 27, line 25, for tho' 50, read, about 12. P. 29, l. 31, for Fig. 11. read Fig. 2. P. 30, l. 34, for Circumference, read Area. P. 31, l. 17, for are, read is. P. 31. l. 30, for fowl, read foul.

A CHRONOLOGICAL MEMOIR of Occurrences.

For M A Y, 1755.

Spain.

ON the 16th of April last, an engagement happened at sea, a few leagues to the eastward of Alicant, between five Spanish and three Moorish Zebecks, in which the Spaniards sunk the Moorish vessels, and took 500 prisoners, amongst whom were the captain and crew of a Dutch ship laden with corn, which had been taken by the Moors the day before.

Italy. Two ships of war, now at Porto Faraio, are fitting out directly, in order to protect the navigation against the Algerines, who already infest the coast. For some time past one ship of 26 guns, one Zebeck of 16, and one of 10, with Algerine colours, have been cruising in sight of Leghorn, where they have already taken three Neapolitan vessels, one Genoese, and one Felucca belonging to Corsica; so that neither the Tuscan nor Dutch ships dare put to sea. Every thing seems to be quiet in Corsica. The Barbary cruisers, in short, infest the Sicilian coast so much, that no ships dare put to sea, but those who are in amity with them.—Letters from Algiers of the 4th of April last, mention, that the Swedish and Danish consuls have prevailed on the Dey not to break the peace with their masters.

Plantation News. At Wilmington island, the inhabitants are at open hostilities with the French, particularly on the back of Virginia, being about 300 miles from Augusta, on the river Ohio.

We have advice from Boston in New-England, that the four provinces have raised 7000 men, who are gone on an expedition against the French.

Scotland. The society, formed at Edinburgh for the improvement of arts and sciences, manufactures and agriculture in this country, have agreed to give premiums of different values, for the best discovery in sciences; for the best printed book of ten sheets; for the best printed cotton or linen cloth; for the best imitation of English blankets; for the best ale and porter; for the best imitation of Dresden-work; and for the most useful invention in arts, &c.

The honourable the barons of the Exchequer have received his majesties royal war-

rant in order to pass the privy-seal, granting to the royal infirmary of Edinburgh, the sum of 8160l. 10s. 6d $\frac{1}{4}$. sterling. This fund, which commonly went by the name of the invalid fund, was established before the union of the two kingdoms, by a deduction out of the pay of the forces in Scotland, in order to create a sum for giving charity to such subalterns and soldiers, as through age, and being disabled, were incapable of service; and as through length of time, the invalids established on the said fund are all dead, the fund became thereby at his majesty's disposal.

His majesty has likewise been pleased to give 2000l. sterling (500l. to be paid yearly for 4 years) towards carrying on the public buildings in this city.

Ireland. On a rumour that prevailed at Galway in this kingdom, that the French intended to make a descent on that coast, the principal gentlemen of the Roman catholic religion waited on Stradford Eyre, Esq; their governor, to assure him of their inviolable attachment to his majesty's sacred person and government, and their utmost detestation of all his enemies.

On the 23d of April last, a serjeant's guard was ordered by the general to be posted at the west gate of Galway above mentioned, another at the abbey gate; and a third at Dublin-gate; besides the main-guard being doubled, and a piquet guard, commanded by a captain who mounted every night at the exchange, and patrolled every second hour.

On the 4th of May, his excellency the marquis of Hartington, lord lieutenant of this kingdom, embarked at Holyhead, on board the Wyvill packet-boat, and landed the next morning about 5 o'clock at Skerries. Their excellencies the lords justices and several persons of distinction, sent their coaches to bring his excellency and retinue to Dublin, where he arrived about two o'clock, accompanied by a great number of the nobility and gentry; and was received on his arrival by the lord mayor, alderman, sheriffs, &c. with all the demonstrations of public joy imaginable.

L O N.

L O N D O N.

April 25. HIS Majesty went to the house of Peers, with the usual state, accompanied by his grace the duke of Dorset, master of the horse, and the Lord of the bedchamber in waiting, and was pleased to give the Royal assent to divers Acts, and amongst the rest to an Act for granting to his Majesty the sum of one million to be raised by a lottery.

An act for the encouragement of the British white herring fishery.

An act for the encouragement of the whale fishery.

An act for encouraging the making of indigo in the British plantations in America.

An act for the better preventing theft and robberies, and for regulating places of public entertainment.

An Act for Relief of insolvent debtors, &c. and to 15 private bills. After which his Majesty made a most gracious speech from the throne; in which he acquainted the two Houses, that the zeal they had shewn for supporting the honour, rights and possessions of his crown had afforded him the greatest satisfaction; that his desire to preserve the public tranquillity had been sincere and uniform; that he had thoroughly adhered to the stipulations of the treaty of Aix la Chapelle; and made it his care not to injure or offend any Power whatsoever; but never could entertain a thought of purchasing the *Name of Peace*, at the expence of suffering encroachments upon, or of yielding up what justly belongs to Great Britain, either by ancient possessions or solemn treaties; that the vigour and firmness of his Parliament on this important occasion had enabled him to be prepared for such contingencies as might happen; that if reasonable and honourable terms of accommodation could be agreed upon, he would be satisfied; and in all events relied on the justice of his cause, the effectual support of his people, and the protection of the divine providence.

After which the Rt. hon. the lord chancellor, by his Majesty's command, prorogued the Parliament to Tuesday the 27th of May next ensuing.

26 There was a great council held at St. James's, at which Time his Majesty appointed the Regency during his Stay at Hanover; and the next day the Rt. Hon. the counts of Yarmouth, the right hon. lord Anson and the earl of Holderness, set out for Harwich to embark for Holland, in order to attend his Majesty to his German dominions; and on the 28th his Majesty set out for the same place himself.

72. A fire broke out at a workshop and warehouse of mr. Smith, a tallow-chandler,

&c. at Guilford in Surry, which consumed the same, and did considerable mischief besides.

29. The Lords of the Admiralty have ordered, that the officers in the fifty new companies of Marines do repair to their several head-quarters with the utmost expedition.

The Bank of England paid into the treasury upwards of 700,000 l. for contributions to the lottery.

The Peggy sloop of war, capt. Obrian, sail'd from Shields this day on a secret expedition; as also the Macclesfield Tender, full of volunteers, &c. for the fleet at the Nore.

30. The Committee of the Mansion-house had a meeting, and came to a resolution, that the said house should be forthwith furnished, and that all proper furniture should be provided for it.

May 1. Arrived an express at St. James's, which brought an account of his Majesty's safe arrival at Helvoetsluys on the 29th of April last.

This Day being the anniversary meeting of the treasurers and trustees of the several charity schools within the cities of London and Westminster, &c. the Rt. rev. the lord Bishop of Norwich preached a sermon before them on that occasion, at Christ-church in Newgate-street. About 5000 children went in procession to attend divine service; a very agreeable sight to abundance of beholders, who rejoiced to see so many poor destitute children so decently clothed, and educated in so christian a manner.

5. About ten at night a fire broke out at mr. Walker's a coal-merchant, near lady Parson's brewhouse in St. Catherine's, which soon communicated itself to several warehouses, in which were contained hemp, pitch, tar, &c. which were entirely consumed, and several houses were damaged before the flames could be extinguished; the engines for a long time had a great scarcity of water; a party of guards from the Tower attended to keep off the populace; and about two in the morning it was got happily under.

8. The lords of the Regency sat from 5 o' clock in the afternoon 'till two the next morning, on account of the expresses from admiral Boscawen.

9. About 12 o' clock this night a messenger was dispatched from the secretary's office to his Majesty.

12. This morning commodore Holbourne was appointed an admiral; and the next day set out from London for Portsmouth, and sail'd the day afterwards from Spithead on

on a secret expedition with eight men of war of the line.

13. The Lords Justices, in council this day, ordered that the Parliament which stood prorog'd to Tuesday the 27th of this instant May, should be farther prorogued to Tuesday the first day of July next.

13 Last night a terrible fire broke out at an oil-shop, just beyond Whitechapel bars, and the flames reaching a barrel of gun-

powder, by the explosion thereof a cross-beam was thrown over the dwelling-house into the street; and one man was killed, and another died as he was carrying to the Infirmary. The poor man in the ware-house was killed in a dreadful manner, and one man more is said to be missing.

On the 15th of May 7000 stand of arms were shipped from the Tower for Ireland.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane.

- April 17. *The City match.*—*Proteus.*
 18. *The Mistake.*—*The Devil to pay.*
 19. *Henry VIII.*—*Bays in petticoats.*
 21. *The conscious lovers*—*Englishman in Paris.*
 22. *Coriolanus.*—*The Devil to pay.*
 23. *The Mourning bride.*—*Marplot in Lisbon.*
 24. *The Inconstant.*—*The King and the Millar.*
 25. *The Man of mode.*—*Tom Thumb.*
 26. *King Richard III.*—*Tom Thumb.*
 28. *The Careless Husband.*—*Miss in her teens.*
 29. *The Recruiting officer.*—*Miss in her teens.*
 30. *Zara.*—*Harlequin in China.*
 May 1. *Mackbeth.*—*Proteus.*
 2. *The Merry wives of Windsor.*—*Miss in her teens.*
 3. *The Conscious Lovers.*—*Miss in her teens.*
 5. *Oroonoko.*—*Anatomist.*
 6. *The Provoked Husband.*—*Miss in her teens.*
 7. *Every man in his humour.*
 8. *The Way of the World.*—*Miss in her teens.*
 9. *Zara.*—*Britannia, a Masque.*
 10. *The Mistake.*—*Britannia.*
 12. *The Drummer.*—*Miss in her teens.*
 13. *As you like it.*—*Miss in her teens.*
 14. *The Fair penitent.*—*Britannia.*

Covent-Garden.

- Richard III.*—*School-boy.*
The Fatal marriage.—*School-boy.*
The Earl of Essex.—*Orpheus.*
The Rehearsal.—*Virgin unmasked.*
The conscious Lovers.—*Scapin.*
The Distressed Mother.—*Harlequin Statue.*
Love for Love.—*Dragon of Wantley.*
Hamlet.
The Relapse.—*Scapin.*
The Mourning Bride.—*Sequel to the Dragon of Wantley.*
Venice preserved.—*Lying Valet.*
The Nonjuror.—*Miss in her teens.*
The Way of the World.—*Virgin unmasked.*
The Merchant of Venice.—*Harlequin Skeleton.*
Henry IV.—*Virgin unmasked.*
Mackbeth.
The Stratagem.—*Scapin.*
Lady Jane Grey.
Othello.—*Dragonefs.*
The Provoked Husband.—*School-boy.*
No Play this Night.
The Old Bachelor.—*Scapin.*
The Spanish Fryar.—*Scapin.*
Romeo and Juliet.—*Orpheus.*

BIRTHS.

April 25. Lady Harriot Conyers, delivered of a son.

27. The lady of Lewis Monson Watson, Esq; of a son.

May 5. The lady of the right hon. the earl of Ossory, of a son.

MARRIAGES.

Apr. 22. W. Salvin, Esq; to miss Gascoigne.
 24. Mr. George Neale, surgeon of the London Hospital, to miss Adams, with a fortune of 10,000 l.

Wm Hemming, merchant, to miss Amey Hamilton, with a fortune of 30,000 l.

25. Sir John Pole, Bart. to miss Mills.
 30. Lewis Way, of Richmond, Esq; one of the directors of the S. Sea Comp. to miss Payne, sister to the countess of Northampton.

James Evelyn, Esq; to miss Medley.
 May 1. Sir Bouchier Wrey, Bart. to miss Thresher, with 20,000 l. fortune.

John Brettell, Esq; to the hon. miss Hawley, only daughter of the right hon. lord Hawley.

Tho. Monk, Esq; to lady Aminta Berresford, daughter of the earl of Tyrone.

DEATHS.

DEATHS.

April 10. Sir Patrick Grant, of Dalvey, Bart. Scotland.

15. The right hon. Ann, countess of Dumfries, daughter of the late earl of Aberdeen, and sister to the present earl.

20. Henry Migget, Esq; captain in the royal regiment of horse-guards blue.

Henry Barnard, Esq;

Mr. Wilkins, clerk in the accountants office, at the general post-office.

The rev. mr. Raynes, vicar of Isfield, Suffolk.

23. Samuel Berkley, Esq;

Capt. William Snell.

Dr. Gideon Harvey, late physician to his majesty's tower, and senior fellow of the college of physicians.

Richard Hamersley, Esq; chief clerk in the land-tax office in his majesty's exchequer.

Capt. John Field, a commander in the East India company's service.

26. Sir John Chardin, Bart.

29. Felix Calvert, Esq;

The right hon. Philip, lord Aston, baron of Forfar in Scotland.

Mr. Reynell, one of the common council of Walbroke Ward.

Thomas Foley, Esq; (late commander of the *Savage* sloop) who went round the world in the *Centurion*.

William Strode, Esq; late member of parliament for Reading.

Sir Edmund Bacon, premier baronet of England.

May 6. Sir Charles Loraine, bart.

8. The rev. mr. Martin, of Corston in Warwickshire.

10. The rev. mr. Adderley, late rector of Newton St. Loe, near bath.

11. The rev. mr. Carr, late rector of Charing in Kent.

13. Mr. Samuel Rodbard, one of the directors of the million bank.

Mr. Jones, one of the sealers under the lord high chancellor.

Civil and Military Preferments.

* *April 23.* Dr. Harding, brother to Nicholas Harding, Esq; member of parliament for Eye in Suffolk, is appointed physician of the Tower, in the room of Dr. Gideon Harvey, deceased.

25. Dr. Hay, of Doctors Commons, constituted his majesty's advocate general, in the room of Dr. Paul, lately deceased.

Major Dalrymple, appointed lieutenant-colonel of gen. Cholmondeley's regiment of dragoons.

Capt. Hepburn, major of the said regiment.

Lieutenant-col. Webb, lieutenant-col. of

the earl of Albemarle's regiment of dragoons.

26. His majesty in council, this day, declaring his intention of going out of the kingdom, for a short time, was pleased to nominate the following persons to be lords justices for the administration of the government during his majesty's absence, viz.

His royal highness William, duke of Cumberland.

Thomas, archbishop of Canterbury.

Phillip, earl of Hardwicke, lord chancellor of Great Britain.

John, earl Granville, lord president of the council.

Charles, duke of Marlborough, lord privy-seal.

John, duke of Rutland, lord steward of his majesty's household.

Archibald, duke of Argyll.

Thomas Holles, duke of Newcastle, first commissioner of the treasury.

Lionel, duke of Dorset, master of the horse.

William, lord Cavendish, of Hardwicke, commonly called marquess of Hartington, lord lieutenant of Ireland.

Robert, earl of Holderness, one of his majesty's principal secretaries of state.

William Henry, earl of Rochford, groom of the stole.

George, lord Anson, first commissioner of the admiralty.

Sir Thomas Robinson, another of his majesty's principal secretaries of state. And Henry Fox, his majesty's secretary at war.

28. John Tracy, of Lincoln's Inn, Esq; is appointed curfitor-baron, in the room of Edward Barker, Esq; who resigned.

May 1. Andrew Coltee Duncarol L.L.D. was by the master and chapter of St. Katherine's appointed commissary, or official principal of that antient and royal jurisdiction in the room of Dr. George Paul, dec.

2. Mr. John Saville, made vicar choral of Litchfield cathedral.

3. Claudius Amyand and James Rivers, Esqrs. to be secretaries to the lords justices.

Henry Cavendish, to be a baronet of the kingdom of Great Britain.

6. His majesty hath been pleased to make the following promotions in the army on the Irish establishment.

Quality. Officers names. Whose room. Reg.

Capt. John Scottow. Wilson, dec. Sack.

Capt. Lt. Phin. Bowles. Scottow, pr. Ditto.

Capt. Lt. T. Desbrisay. Bowles, pre. Ditto.

Cornet. R. Bowater. Desbrisay, pr. Ditto.

Ensign. Trev. Winder. Bartman, pr. Richb.

Chapl. Hen. Bayly. Coote, refug. Black.

12. Commodore Holbourn, created an admiral.

14. W. Bruton, master tackle house-porter

ter to the merchant taylors company, was sworn in a ruler of the society of tackle-house and ticket-porters, in the room of Mr. Eggleston, deceased.

ECCLESIASTICAL PREFERMENTS.

The rev. R. Alleyne to the rectory of Stanford, Nottinghamshire, worth 180l. per annum.

The rev. W. Davenport, A. M. domestic chaplain to his grace the most noble duke of Beaufort.

Therev. mr. Dampier one of his majesty's chaplains.

The rev. Tho. Webb, A. B. to the rectory of Bampton, Wiltshire.

The rev. Brownl. Toller, domestic chaplain to the Rt. hon. Hannah Sophia, countess dowager of Exeter.

The rev. Cha. Dodgson, B. A. to the rectory of Kirkby upon Wiske, worth upwards of 200l. per annum.

The rev. Tho. Lane, A. B. to the rectory of Saffron Would, Worcesterhire.

The rev. W. Langhorn, domestic chaplain to the Rt. hon. Cha. earl of Peterborough.

The rev. mr. J. Rolle to the living of Berwick St. John, Wiltshire.

The rev. mr. Dodgson, domestic chaplain to the earl of Northumberland.

The rev. Sayer Rudd, M. D. to the vicarage of Westwell, Kent.

The rev. mr. Rd. Berney to the vicarage of Calthorpe in Norfolk.

The rev. mr. Finch elected Tuesday lecturer at St. Bartholomews behind the Exch.

The rev. Herbert Lewis, A. M. made domestic chaplain to the Rt. hon. Sackville, earl of Thanet and baron Tufton.

The rev. Tho. Dumford, A. M. to the rectory of Whiteham, Devonshire.

The rev. mr. Geo. Newton, A. B. to the rectory of Isfield, Essex.

Whitehall, April 29. Francis Seymour, commonly called lord Fran. Seymour, made prebendary of the collegiate church or free chapel of St. George in the castle of Windsor, void by the promotion of dr. Rd. Newcome, to the bishoprick of Landaff.

J. Davis, A. M. made canon or prebendary of Canterbury, void by the death of dr. Sam. Shuckford, late canon thereof.

Tho. Curtis, A. M. made canon or prebendary of Canterbury, void by the death of dr. Hen. Dawnay, late canon thereof.

J. Ofwald, LL. B. made prebendary of Westminster, void by the death of dr. Rd. Bullock, late prebendary thereof.

DISPENSATIONS to hold two livings.

April 19. The rev. Michael Dorret, M. A. chaplain to the right rev. the lord bishop of Chichester, collated to the livings of Walberton; with the the united vicarages of Rusting cum Yapton.

23. The right rev. Mark Hildesley, D. D. bishop elect of the isles of Sodor and Man, to hold with that bishoprick the rectory of Holwell, Bedfordshire; with the prebend of Marston, otherwise Marston St. Lawrence, founded in the cathedral church of Lincoln.

26. The rev. Sackville Spencer Bale, M. A. to the rectory of Withyham, Suffex; with the rectory of Chiddington, otherwise Chiddingstone, Kent, worth upwards of 400l. per ann.

Dr. Mark Hildesley, consecrated bishop of Sodor and Man, and on the 27th confirmed.

29. The rev. Richard Wynne, M. A. to the rectory of Rushden, Northamptonshire, with the rectory of Gumley, Leicesterhire.

May 3. The rev. Thomas Broughton, M. A. to the rectory of Wotton, Surry, with the rectory of All-hallows in Lombard-street, London, worth together upwards of 300l. per annum.

6. The rev. Richard Bullock, M. A. to the consolidated rectory of Copdock with Washbrook, Suffolk; and also the rectory of Drayton, otherwise Dry-Drayton, worth upwards of 300l. per annum.

B——KR——TS.

April 26. Richard Blackburn, Michael-Cope Hopton, and William Swan, of London, merchants, and partners.

Joseph Smith, of Enfield, victualler and Butcher.

John Hatchman, of Prittlewell, Essex, shop-keeper.

John Flint, of London, stationer.

29. John Bell, of Sunderland, leather-seller. Alex. Thompson, of Westminster, embroiderer.

John Robinson, of Hoxton-square, weaver. Gilbert Wood, of London, warehouselman.

May 3. William James, of Ruffel-street, Covent-garden, upholster.

James Pickett, of London, orange-merch. Henry Wheatley, of Southwark, ship-chand.

John Bradley, of Covent garden, distiller.

6. John Collison, of Chatham, butcher. Robert Kitchen, of Manchester, dyer.

James Farmer, of Alie-street, Middlesex, merchant.

10. Robert Lower, of London, merchant.

Thomas Woodcock, of Norwich, worsted-weaver.

13. William Gaskell, of Pall-mall, taylor.

17. Ayeliff Buddle, of Fish-street-hill, London, stationer.

Robert Crofs, of Norfolk, butcher.

20. Jane Papworth, of Cornhill, London, vintner.

John Hayman, of Westminster, hosier.

Moses Moravia, of Duke's Place, London, chapman.

BILL of Mortality from Apr. 22. to May 20.

Buried		Christened	
Males	704	Males	667
Females	780	Females	653
Under 2 years old 533		Buried,	
Between 2 and 5	141	Within the walls	105
5 and 10	43	Without	358
10 and 20	39	<i>Mid. and Surry</i>	698
20 and 30	109	<i>City & Sub. West.</i>	323
30 and 40	149		1484
40 and 50	142		
50 and 60	135		
60 and 70	96	Weekly <i>Apr.</i>	29. 361
70 and 80	62	<i>May</i>	6. 350
80 and 90	28		13. 440
90 and 100	7		20. 333
100 and 109	0		1484
	1484		

Observations on the Weather.

Mar.	Baro- meter.	Therm.	Pluvia- meter.	Hygro- meter.
Apr. 22	29 : 9	31	0 : 0	
23	29 : 8	28 $\frac{1}{2}$	5 : 0	
24	29 : 7	28 $\frac{1}{2}$	8 : 2	
25	29 : 6 $\frac{1}{4}$	27 $\frac{1}{2}$	12 : 1	
26	29 : 5	26	16 : 3	
27	29 : 4 $\frac{3}{4}$	26 $\frac{1}{2}$	0 : 0	
28	29 : 3 $\frac{1}{2}$	25 $\frac{1}{2}$	20 : 0	
29	29 : 5 $\frac{1}{4}$	23	1 : 0	
30	29 : 9	22	2 : 3	
May 1	29 : 7	24	0 : 0	
2	29 : 6	24 $\frac{3}{4}$	5 : 5	
3	29 : 7 $\frac{1}{2}$	24	5 : 6	
4	30 : 0	22	0 : 7	
5	29 : 8	24	0 : 0	
6	29 : 6	24	0 : 1	
7	29 : 6	24	18 : 7	
8	29 : 8	24	4 : 8	
9	30 : 1	24	0 : 1	
10	29 : 9 $\frac{1}{2}$	24	0 : 0	
11	29 : 7 $\frac{1}{2}$	25	5 : 1	
12	29 : 7	25	0 : 1	
13	29 : 7	25	18 : 0	
14	29 : 8 $\frac{1}{2}$	25 $\frac{3}{4}$	9 : 5	28 Moist.
15	29 : 8	27	0 : 0	16 Dry.
16	29 : 9 $\frac{1}{2}$	27 $\frac{1}{2}$	3 : 0	20 D.
17	29 : 9 $\frac{1}{2}$	25 $\frac{1}{2}$	0 : 0	20 D.
18	30 : 2	26	0 : 0	30 D.
19	30 : 3	24	0 : 0	29 D.
20	30 : 2	26	0 : 0	20 D.
21	30 : 1 $\frac{1}{2}$	29	0 : 0	20 D.
22	30 : 2	29 $\frac{1}{2}$	0 : 0	16 D.

BOOKS, published since our last. 1755.

AN Address to the Clergy for raising and establishing a Fund, by the Aid of Parliament, to make Provision for their Widows and Children. *Owen.* 6d.

Advice to Posterity. *Freeman*. 6d. — A Pamphlet wrote with Spirit; but no way, it is hop'd, applicable to the present Times.

An Apology for the Clergy. *Bladen*. 1s. —wherein the Author undertakes a Vindication of them, from the Abuses which he thinks are thrown on them by Mr. Romaine, in his Preface to his Commentary on the 100th Psalm.

Dr. Batt's Oratio Harvæana. *Dod'sley.* 1s.

Carte's History of England, 4th Vol.
Russel, 1l. 10s.

Compleat Drawing Book. *Sayer*. 4s.

The Country Gentleman's Advice to his Son, on his coming of Age, in the Year 1755, with regard to his political Conduct, &c. *Owen. 1s.*—The Design of this Pamphlet seems to be, to lower the violent Spirit of Party in this Kingdom, and conciliate the Affections of all Honest Men to one another, which would tend to unite them in every Measure for the Good of their Country.

The Free-thinker's Criteria exemplify'd, in a Vindication of M. T. Cicero and the late D. of Marlborough, against the Censure of the late Ld. Bolingbroke. *Owen. 1s. 6d.*

11. 5s. in Sheets. — This Book we shall say something of in our Natural History of that Country.

Johnson's Dictionary of the English Language, 2 Vol, Fol. *Knapton, Longman, &c.* 4l. 10s. bound. — As the Plan of this Work cannot but be sufficiently known from the great Numbers of it distributed *gratis* for several Years past, we shall only say, that, in the Opinion of good Judges, the Work has great Merit, perhaps more than any other single Hand could have given it. — The ingenious Author traces our Language from the Days of King Alfred, when he first judges it capable of expressing all the Sentiments of a civiliz'd People : He gives several Specimens of the Manner of Writing at that Time, and the many Variations our Language has since undergone ; illustrating his Observations by proper Examples in Style and Orthography according to the prevailing Modes at different Periods. — We shall give the following Article for a Sample of his Method :

PLEASURE, n. f. (*Plaisir*, French.)

1. DELIGHT; Gratification of the Mind
or Senses.

Pleasure, in general, is the consequent Apprehension of a suitable Object, suitably applied to a rightly disposed Faculty.

South's Sermons.

A Cause of Men's taking Pleasure in the Sins of others, is that Poor-spiritedness that accompanies Guilt. South's Serm. In hollow Caves sweet Echo quiet lies; Her Name with Pleasure once she taught the Shore, Now Daphne's dead, and Pleasure is no more. Pope.

2. LOOSE GRATIFICATION.

Convey your Pleasures in a spacious Plenty, And yet seem cold. Shakespear.
Behold yon Dame does shake the Head to hear of Pleasure's Name. Shakesp. K. Lear.
Not sunk in carnal Pleasure. Milton.

3. APPROBATION.

The Lord taketh Pleasure in them that fear him. Psalm.

4. WHAT THE WILL DICTATES.

Use your Pleasure, if your Love do not persuade you to come, let not my Letter.

Shakesp. Merch. of Venice.

He will do his Pleasure on Babylon. If. xlviii.

5. CHOICE; ARBITRARY WILL.

We ascribe not only Effects depending on the natural Period of Time unto arbitrary Calculations, and such as wary at Pleasure; but confirm our Tenets by the uncertain Account of others.

Brown's Vulgar Errors, B. IV.

Half their Fleet offends

His open Side, and high above him shows;

Upon the rest at Pleasure he descends,

And doubly harm'd, be double Harm bestows.

Dryden.

Raise Tempest at your Pleasure. Dryden.

We can at Pleasure move several Parts of our Bodies. Locke.

All the Land in their Dominions being acquir'd by Conquest,

Was disposed by them according to their Pleasure. Arbuthnot.

To pleasure, v. a. [from the Noun.] To please, to gratify: This Word, though supported by good Authority, is, I think, inelegant.

Things, thus set in Order,

Shall further thy Harvest, and pleasure thee best. Tupper.

I count it one of my greatest Afflictions, that I cannot pleasure such an honourable Gentleman. Shakespear.

If you but please him, shall pleasure you, Fight closer, or good Faith you'll catch a Blow. Shakespear.

When the Way of pleasuring and displeasuring lieth by the Favourite, it is impossible any should be ever great. Bacon.

Nothing is difficult to Love; it will make a Man cross his own Inclinations, to pleasure them whom he loves. Tillotson.

Pleasureful, Adj. [Pleasure and full] pleasant, delightful, obsolete.

This Country, for the Fruitfulness of the Land, and the Conveniency of the Sea,

hath been reputed a very commodious and pleasureful Country. Abbot's Dis. of the World.

The Christian Philosopher and Politician; No. 1. Vol. 3. Owen. Price 4d. — This is a Collection of Essays chiefly on religious Subjects; to be continued once a Fortnight.

Remarks on the second Vol. of the Lord Bishop of London's excellent Discourses. Crowder. 1s. 6d.

Religious Conscience, or the Morning and Evening Sacrifice; a Poem, in Imitation of Dr. Young's Night Thoughts. Baker and Owen. Price 1s. — Our Reader may form some Judgment of the Work by the following Sentiments:

I tell thee, Philocles, the poison'd Draught, The Dagger's Point, the nerve-distending Rack, The boiling Cauldron, and the burning Bull, Are tender Mercies to the String of Guilt.

The Widow of the Wood. Corbett. 2s. 6d.

— A Story, said to be founded on Fact, which has much the Air of a Romance.

The Will of Dr. Richard Rawlinson.

Fletcher and Rivington. 1s. — particularly remarkable for his Endowment of an Anglo-Saxon Lecture in St. John Baptist's College Oxon. — As we are a Trading Nation, it would be a glorious Design and well worthy of Persons truly publick-spirited, to found a Lecture for Trade and Commerce in each of our Universities; which would render our young Nobility and Gentry, who are likely to have a Share in the Legislation of their Country, proper Judges of its true Interests.

Foreign Books, published in the Months of January, February, March, 1755.

Ordres Monastiques: Histoire, extraite de tous les Auteurs qui ont conservé à la Postérité ce qu'il y a de plus curieux dans chaque Ordre. Tom. III. Part I.

Lettre sur la Guérison radicale d'un Cancer, au moyen d'une Infusion de Bella-donna.

Instruction Chrétienne, en cinq Tomes, 8vo, publiées par les Soins d'une Société de Gens de Lettres à la Neuveville en Suisse. 1754.

Histoire de l'Académie Royale des Sciences; Année 1749. Paris. Quarto.

Relation de Missions du Paraguai, traduite de l'Italien de Msr. Muratori. Paris. 8vo. 1754.

Histoire, et Memoires de l'Academie des Sciences et Belles Lettres de Berlin, pour l'Année 1752. Tom. VIIIme, Quarto. Berlin.

Cinq Essais sur autant d'Endroits remarquables dans l'Histoire Sainte. A Londres, chez Millar, 1753. Octavo.

Memoires sur l'Inoculation de la Petite-Verole, &c. par Msr. de la Condammé, &c. — Essai apologétique sur la Méthode de communiquer la Petite-Verole, &c. par Msr. Chais, &c.

[To be continued.]

EACH DAY'S Price of STOCKS, in MAY 1755.

B Books shut, is signified thus,

[illegible]

Miscellaneous Correspondence,

For JUNE, 1755.

A clear and succinct Account of NORTH AMERICA,
Historical, Geographical, &c. continued from Page 71.

It is said before, and I think generally agreed, that *John Ponce de Leon* was 15 years later in his discovery of *Florida* than the *Cabots*, and the earliest discovery, we any where find, made by the *French* is still 12 Years later, even to *Canada*, which nothing but possession and capacity to hold gives them any title to, in the *European* notion of such kind of claim; for in respect to the natives, the claim is by purchase or conquest, and the former of these the most rational and just, and indeed, the most secure too, as the proprietors of *Pensylvania* have both to their honour and interest proved it. Therefore, as to the argument in view, and for which our title is now regularly deducing down, it suffices, that we were the first discoverers; but it materially strengthens our claim, that we were the first settlers likewise; that upon *Canada* and *Louisiana* we have a fair claim; but no *European* nation whatsoever the least pretence of claim on any part of *America*, whereof the subjects of *England* are possess; and this is what we propose to shew in the course of our relation.

As we are now on the verge of a first and permanent establishment in *America*, it is necessary to observe, in as concise a manner as possible, by what methods, and by whose means, after so many discouragements, negligences, and disappointments, the same was effected. — The same *Bartholomew Gosnold*, mentioned before to have slightly viewed some part of the coast, was so much delighted with the country, as to set his whole heart on the peopling it; but as on his own bottom, he conceived, from his observations and experience of others, it would be impracticable, he therefore turned his thoughts to the engaging of such persons of power, interest, and wealth, as might essentially conduce to the end at which he aimed. He was near four years, that is to say, from the year 1602 to 1606, applying to various persons in vain; when at length he very luckily became acquainted with *Capt John Smith*, a man, who will make a figure in the course of this work, and whose

history, previous to this engagement, is of so extraordinary and romantic a nature, that, had I room for biography here, would singularly amuse the reader. This *Capt. Smith*, *Mr. Edward Maria Wingfield*, and the *Rev. Mr. Hunt*, undertook with *Captain Gosnold* the conduct of this affair; but still not being strong enough on their own bottoms, they sometimes separately and sometimes jointly, made their application to various persons of distinction, nobility, gentry and merchants, and having engaged a sufficient number, they next applied for, and obtained from *King James* a patent, which divided the coast of *America* into two colonies, the southern and the northern: this patent bears date the 10th of *April* 1606, and appoints *Sir Thomas Gates* and others for the southern, and *Thomas Hanham* and others for the northern; the southern was appropriated to the city of *London*, and extended from the latitude of 34 to 38 on the coast, and inwards to the Latitude of 41; the northern was appropriated to *Bristol*, *Exeter*, *Plymouth*, and the western parts of *England*, and was to extend from the latitude of 38 to 45. — Besides this charter, the king, under his sign manual and privy-seal, ordained a council, under the name of the King's Council of *Virginia*, consisting of 40 persons of high character and distinction; amongst whom those who make any figure in the following history, were *Sir Thomas Smith*, *Sir Thomas Chaloner*, *Sir Edwin Sandys*, and *Sir Thomas Roe*. Under which powers the first, or southern colony, still called *Virginia*, was undertaken, and of this constitution *Sir Thomas Smith* was appointed treasurer; and the care of the expedition committed to *Capt. Christopher Newport*, a mariner of great abilities, with two ships and a bark properly provided, and commanded under him by *Capt. Gosnold* and *Capt. Ratcliff*, with suitable orders and instructions how to proceed, with particular directions, if possible, to find a passage through to the *South Seas*, which seems to have been the main view of this enterprize.

The 26th of April 1607, they arrived on the coast of *Virginia* near *Cape Henry*, by them so named in honour of the prince of *Wales*; and being extremely pleased with the Country, they ranged about 'till the 13th of May, when they agreed to settle on a peninsula on the north side of the river *Powhatan*; this place, in honour of his majesty, they named *James Town*, and having opened their instructions, they found Mr. *Wingfield*, *Gosnold*, *Smith*, *Newport*, *Ratcliff*, *Martin*, and *Kendal*, appointed for the council; and Mr. *Thomas Hudley* was by them elected treasurer. By the 15th of June their affairs were pretty well adjusted, and having a fair intercourse, and fixing terms of peace with the natives, Capt. *Newport* sailed for *England*, leaving behind him 100 persons: but thro' the neglect of the council in *England*, or their treasurer being extremely ill provided, they were subjected to various distresses, too prolix in the relation for the compass here assigned, and were singly supported and encouraged by the distinguished courage and discreet management of Capt. *Smith*, who was at length, fighting alone against a number of the natives, by a meer accident taken prisoner, and in the event preserved by the affection of a young *Indian* damsel, daughter of the emperor of *Powhatan*, and by her conducted back to the colony. This, though not immediately to our purpose, is mentioned here, because the lady hence makes some figure in this account, and will be found married to an *English* gentleman, and died in *England*: her name was *Pocahontas*; and she is said to have been a very amiable person.

In the latter end of this year, Capt. *Newport* arrived with supplies in two ships, in one of which he soon after returned; and the other in the opening of the spring 1608, laden with Cedar, likewise sailed for *England*.

As the summer approached, Capt. *Smith* employed himself in making various discoveries; on the 16th of June, they fell in with the mouth of *Patwomac* river, and having searched it thoroughly, they set sail for *Rappahanoc*; and having made proper observations, returned the 17th of July to *James Town*, where the people made him president instead of Capt. *Ratcliff*, who had abused them, and riotously wasted their stores.

24 July, Capt. *Smith* set out again in a small vessel with twelve men on further discoveries; he met in his course several canoes of warlike *Indians*, at present known by the name of the *Senecas*, or six nations, with whom, after some contest and bravadoes on both sides, he engaged in friendship.

The next day they fell in with a fleet of armed canoes of the nation of the *Tockwayhs*, and having made peace with them, was visited by the *Susquehannads*, a numerous and gigantic people, living in palisaded towns; and by these people Capt. *Smith* was first informed of the *French* having settled in *Canada*, with whom they traded for hatchets, by the way of the lakes.

While Capt. *Smith* was pursuing his discoveries here, and making good his settlement, the interest of the northern colony was embraced in *England*, and undertaken by several persons of distinction. They set out a vessel, well provided in May 1607, and fell in somewhere to the northward of *New England*, from whence after various distresses, they returned to *England* in 1608.

About this time also Capt. *Henry Hudson* discovered *Long Island*, *New York*, *Hudson's River*, and the parts adjacent, and meeting with no encouragement at home, sold them to the *Dutch*. This sale was excepted against as the discovery was made under the king's commission; however, the *Dutch* crept in by degrees, constructed *New Amsterdam* and several other towns, fortified them, and (by their accustomed industry) made it a flourishing colony.

In the latter end of this year, 1608, *Newport* arrived in *Virginia* with a fresh supply of people and provisions, amongst the rest Mr. *West*, brother to lord *Delaware*, sixteen other Gentlemen, and two women, the first in the settlement, and was returned home with some trials of pitch, tar, glass, frankincense, and soap-ashes.

In the succeeding year 1609, the colony attained to some degree of perfection and plenty; they made a considerable quantity of tar and pot-ashes, planted 40 acres of ground, and were well stored with hogs, poultry, and other cattle.

The same year, the council in *England* applied for a new charter, and obtained it; by this, the council in *Virginia* were abrogated, and lord *Delaware* was appointed captain-general, Sir *Thomas Gates* his lieutenant, Sir *George Sommers* admiral, *Newport* vice-admiral, Sir *Thomas Dale* high marshal, and various other officers for life. And as the earls of *Salisbury*, *Suffolk*, *Southampton*, *Pembroke*, and various other persons of distinction were included in this charter, as well as several public companies, a large sum of money was raised, and nine ships, with 500 men, dispatched to recruit and enlarge the colony, under the direction of *Gates*, *Sommers*, and *Newport*, who, not agreeing about the command, went all aboard of one ship, and were with 150 men wrecked in a hurricane on *Bermudas*, a small ketch

ketch foundered in the same storm, the other seven arrived safe, bringing with them a parcel of the most debauched, idle people, that were perhaps ever sent to that country; but *Smith's* superior courage and industry conquered all obstacles; he ordered *Mr. West*, with 120 of the best men, to make a settlement at the *Falls*, and *Mr. Martin*, with near the same number, to *Nansamond*, where behaving meanly, he was treated with great contempt by the natives, and *Mr. West* returning immaturally, capt. *Smith* entered into a treaty with *Powhatan* for a more convenient settlement, and seated *Mr. West's* people there, which they soon after abandoned, and returned to the *Falls*.

Capt. *Smith*, who had been hitherto the soul of the colony, was now, by the accidental fire of some powder that lay in the boat between his legs, so disabled, as to be utterly incapable of performing any further service to the colony, and therefore obliged to return to *England*.

To his vigour, industry, and undaunted spirit, the establishment and firm settling of the colony was certainly owing, and this unhappy accident the appropriated cause why this colony, for a long time after, remained in a tottering, or rather declining state, as will but too well appear in the course of the various events hereafter related.

It has been said before, that the admiral ship, with *Sir Thomas Gates*, *Sir George Sommers*, and Capt. *Newport*, were wrecked on *Bermudas*, the ship, after various endeavours to clear the coast, struck upon a rock, but the high surges forced her off again, and violently carrying her in amongst a great cluster of other rocks, at length providentially so seated her between two, that she was jammed in firm and immoveable, to the great joy and surprize of them all, but still more heightened by a sudden change of wind, or rather of weather and soon after it became quite calm. This gave them full leisure, with all requisite convenience, to unlade the ship, and land all their stores, provisions, &c. quite out of any future danger.

Here, instead of a complicate scene of barren rocks, wild wastes, and dreary deserts, they found, to their unspeakable satisfaction, one of the finest countries in the world, and so afterwards celebrated by that distinguished poet *Mr. Waller*. They found all the fruits of the climate in great plenty and perfection, the inter-jacent currents amongst the rocks stored with excellent fish, a great number of wild hogs, in the woods birds of various kinds, and in the plains a vast superfluity of salubrious herbage. The

hogs may be supposed to have bred here from some left by *John Bermudas*, the discoverer in 1522; and it was equally satisfactory, that they found here cedar in great abundance, with which they built two small ships, that particularly of *Sir George Sommers*, in which he embarked, had not any iron in her, except one bolt in the keel; these they rigged, with what they saved from the wreck, and all things being now in readiness, after nine months abode, they, on the 10th of *May* 1710, set sail for *Virginia*, where they arrived the 24th.

They found on their arrival the colony reduced to great misery and distress, owing, as before, to their indolence, inactivity, and some particular maxims of the establishment materially contributing thereto. As in the first place, the want of judging rightly what kind of people were proper to begin a new settlement; what kind of laws just and equal; what kind of immediate directors; and that they were appointed to work and trade on the common stock of the proprietors for their interest only; without any prospect of personal property or advantage to themselves, and this, rather under martial, than the municipal laws of their own country, as soldiers, rather than as labourers, and as slaves, rather than as freemen. These were discouragements, the best would not have succeeded under, and made the worst totally despair of mending their fortunes in a country, where their bread was to be laboured hardly for, and their lives at the same time to be defended at daily imminent hazard, so that they became rather plunderers than improvers, and seeking the corn of the natives, rather than planting themselves; the natives, on their parts, removed it early out of their reach, and occasionally lying in ambush frequently cut them off, when meer despair and necessity obliged the colonists to seek abroad for sustenance. This, with a climate unaccustomed to, and the evils of hunger and sickness preying at the same time on their vital strength and spirits, their former, as well as present situation seems not difficult to account for; nor consequently, the long time it required to fix a firm and permanent establishment.

The two colonies of *Nansamond* and the *Falls* *Sir George* found, at *James Town*, complaining they had lost their boats, and nearly half of their men. Their principals *West* and *Ratcliff* were dispatched in search of provisions; *Ratcliff* to *Powhatan*, where he was cut off with 30 of his men, only one of the company, a boy named *Henry Spilman*, a gentleman's son, escaping by means of *Pocahontas*, and Capt. *West* went off for *England*;

England; and the whole colony being reduced to extreme misery, Sir Thomas Gates and Sir George Sommers agreed to embark them, and follow Capt. West; but as they were falling down the river, they perceived, at a place now called *Mulberry Point*, a ship's long-boat, and soon after the fleet under Lord Delaware, appointed captain general of *Virginia*, and returned back to *James Town*; and his lordship's arrival giving quite a new turn to their affairs, they, by his advice and example, applied themselves to a more industrious and effectual conduct.

Sir George Sommers undertook to increase their present stock of provisions from *Bermudas*, but unhappily died in the expedition at the island, and his nephew, expressly against his dying commands to return to *Virginia* laden, set sail for *England*.

Capt. Angel was sent to *Patowmac* river to trade for corn, where he found Henry Spilman, and returned laden to *James Town*.

On the first wreck at *Bermudas*, two of the men were left behind, named Carter and Waters, who lived there very sociably. On this last expedition, Mr. Sommers left another man behind him, named Edward Chard, and now the colony being increased to three people, they found it necessary to have a king to govern them, as their wealth had increased by the discovery of a large quantity of ambergrease, of the esteemed value then of near 10,000*l.* the main contest for power lay between Waters and Chard, and they agreed to fight it out, in order to determine which of them should have Carter for their subject, but Carter having very wisely hid their arms, soon after reconciled them to himself and to one another; and for the future, they continued on the footing of equal government a friendly democracy.

Lord Delaware in his government constructed two Forts at *Kicquetan*; the one he named *Fort Henry*, and the other *Fort Charles*, on the points of a small stream, which they called *Southampton* river, and in a very healthy situation, calculated to receive new comers on their first arrival from their native country to season them to this.

Sir Thomas Gates was dispatched by his lordship for *England*; and his lordship soon after, finding himself attacked with a complication of diseases, followed him. The charge of the colony he committed to Capt. Piercey, of the *Northumberland* family, and under his care about 200 persons in good health and well provided.

Before the return of his lordship, the council had sent Sir Thomas Dale to act under him as high marshal, with three ships, men, and cattle, who arrived safe at *Virginia* the 10th of May 1611, and having examined

James-River up to the Falls, constructed a new town on the narrow of *Farrar's Island*, upon an isthmus of the same rising land nearly environed by the stream.

In the beginning of August, Sir Thomas Gates arrived with six ships, 300 men, and store of provision, and Sir Thomas Dale in September built his new town, with a church and storehouses, which he palisadoed round, and called it *Henrico*, in honour of the then prince of Wales, and peopled it with 350 persons, and soon after built and fortified another town, about five miles from the former, and called it *New Bermudas*, within the pale whereof there was good corn-land.

March 12, 1612, a new charter was granted the company for *Bermudas*, the former not extending so far from the coast, and Mr. Richard Moore was sent governor with 60 men, on whose arrival they found the *Triumvirate* above mentioned in good health, but having first plundered them of their wealth, they then reduced them to the degree of common subjects.

In the beginning of this year, Capt. Argall arrived with a fresh supply, and soon after in the *Patowmac*-country, by a stratagem, got *Pocobontas* into his custody, proposing by her means to be upon better terms with *Powhatan*, her father, and declared enemy to the *English*; from that prince the damsel, for some reason unknown now, had fled to the *Patowmacs* with whom the *English* were in perfect friendship, by which means *Powhatan* was in the event content to treat of peace.

For a considerable time before this, Mr. Rolfe, a gentleman of good person and accomplishments, had been in love with *Pocobontas*, and she had a like affection for him; and a marriage being proposed on the one side to Sir Thomas Dale, and on the other, to *Powhatan*, they were in April 1613 married by the mutual consent of all parties, and a firm peace thereupon between the most potent of the *Indians* and the *English* established, which proved a very lucky event.

Sir Thomas, about the same time, made peace with the *Cbiklhominy*s, another potent *Indian* nation, a commonwealth, at war with *Powhatan* for their liberty, and by this means preserved it, equally to the advantage of both parties.

Early in the year 1614, Sir Thomas Gates returning to *England*, Sir Thomas Dale was left sole governor of all the colonies, and having information that the *French* were settling somewhere to the northward about the bay of *Fundy*, he dispatched thither Capt. Argall, who, on his arrival, finding the

the *French* dispersed in the woods, took the ship they came in, and a bark with all their apparel and provision. In his return to *James Town*, he put into *Hudson's river*, to visit the *Dutch* settlements there. The governor, temporising, acknowledged the *English* right; but in the latter end of the year fortified themselves better, and then insisted on holding the settlement. Mr. *Hamar*, who had been in the colony near four years, proposed, the better to consolidate their friendship with *Powhatan*, to inter-marry with another, and his only remaining daughter, and for that purpose Sir *Thomas Dale* entered into treaty with that prince, which however had not the happy effect proposed.

Captain *Smith*, of whom so much has been said, this year made a voyage to that part of the more northern coast, discovered by Capt. *Gosnold*, and having made it advantageous to his owners, and taken an exact survey, he called it *New England*.

Pocahontas was the same year baptized at *James Town*, by the name of *Rebecca*; she was the first christian *Indian* of these parts, and, as my author says, perhaps the most worthy that has ever been since, her affection to her husband extremely constant, and on his part to her in every respect reciprocal.

1615. The colony being now in an established and flourishing state, a lottery was drawn in *England* for farther encouragement; and the same year a large *Spanish* ship was perceived hovering on the coast, and desiring a pilot, a boat was sent with one, whom they carried off to *Spain*, and there offered him great reward, tho' in vain, to betray the colony. It appeared afterwards, that several ships were at sea with intent to surprize it, but they never appeared.

1616. Sir *Thomas Dale* having adjusted every thing to his satisfaction and of those he governed, and having appointed Mr. *George Yeardly* his deputy, he embarked with *Pocahontas* and her husband, and several young *Indians* of both sexes; and on the 12th of *July*, they all arrived safe at *Plymouth*.

Hitherto this colony had been governed by a kind of martial law, but, by a change brought about in the council at home, the people were restored to the enjoyment of their native rights, by the means of Sir *Edwin Sandys*, who succeeded Sir *Thomas Smith* in the treasurership; and there being now about 600 industrious persons, compleatly armed, and well stored with provisions, with a large stock of live cattle of all kinds, fine crops of corn on the ground, and the *Indians* either drove far off from their settlements, or in firm peace with them, I shall here quit, for the present, this branch of our history.

After *John Cabot* had made a general discovery of so much of *North America* as has been premised, his son, *Sebastian*, who had attended him in that expedition, conceiving from the structure of the globe a shorter course to the *East-Indies* than by the Cape of *Good Hope*, made a voyage to the *North West*, hoping to find a passage that way, presuming that he should first fall in with the coast of *Tartary*, but was surprized to find himself interrupted by the intervention of *Newfoundland*, which however sailing round, and so on to the coast of *Labrador*, which he traced to the height of 56 degrees, and then finding the land bend away to the eastward, he gave over his design, and returned to *England*.

In 1576, Sir *Martin Trobisfer* pursued the same course, and made some farther discoveries. But neither in that, nor two subsequent voyages to any purpose, as to the passage in view, and therefore declined the further prosecution, having only led the way to our future settlement in *Hudson's Bay*.

In 1585, Capt. *Davis* pursued the same course, and in two other voyages, as to the main design, much to the same purpose, but carried on his discoveries as far as the latitude of 72-12, on the west side of *Greenland*.

In 1602, another voyage this way was attempted by Capt. *George Weymouth* to little purpose, and in the year 1607, Capt. *Hudson* undertook to make further discoveries; he reached the latitude of 82 and returned; after two other voyages, in hopes of doing something by the north-east, he quitted that pursuit for the present, and having discovered and sold *New York* to the *Dutch*, as previously mentioned in the settling of *Virginia*, in the year 1610, he made one other attempt to the north-east, and in the course of his pursuits happened on the streights that lead into *Hudson's Bay*, which having passed and thoroughly surveyed, his men mutinied and left him behind, from which time he was never heard of; but it is from hence we more especially claim and fix our data of those settlements; tho' no charter granted until *May* 1670.

Thus we plainly extended our discoveries far to the northward of any the *French* ever attempted, so their claim to *Canada* comes next in question. They say themselves, that their first discoveries of that country was by *Veraxi*, under *Francis I.* in 1525; but his discoveries were such only as had been made before, and no farther to the northward than the latitude of 40, which neither interferes with *Canada* or *Accadia*. The next discoverer, they say, was *James Cartier*, in 1534, he sailed up the river *St.*

Laurence,

Laurence, but having lost many of his men, returned to *France*, and it was not until the year 1608, that any settlement was made, when Monsieur *Biencourt* carried over some people whom he landed in *Accadia*, and being drove from thence by the *English* seizing their stores, as mentioned in the account of *Virginia*, they moved to the river *St. Laurence*, and seated themselves on the other side where now *Quebec* stands.

In 1626, when the foundation of that city was hardly laid, the same was attacked and destroyed by the *English* under admiral *Davis*, in prosecution of their just claim even to *Canada*, and here probably had all our future disputes on this side ended, had not the admiral impolitically permitted some of the *French* to remain there, and prince *Charles* marrying a daughter of *France*, the country with some part of *Accadia* was ceded to that crown, which cession afterwards coming in question as an appurtenant of the crown of *England*, the same was for that reason by *Oliver Cromwell* reclaimed, and all that had been ceded of *Accadia* re-assumed and re-possessed.

ACCADIA had been chartered in 1622 to Sir *Alexander Stirling*, but he being outed by the above cession, he conveyed his right to one *de la Tour*, a *French* reformist, who having been put in possession by *Cromwell*, *de la Tour* again conveyed his right to Sir *Thomas Temple*, from whom it is said regularly to descend to the present Earl *Temple* as heir of the late Lord *Cobham*.

However the *French*, after *Cromwell*'s demise, found means to resettle the colony about *Port Royal*, since called *Annapolis*, and continued until after the revolution, and in 1690, we find them increased to 6000—when they were attacked by Sir *William Phips*, and *Port Royal* utterly destroyed; but after permitting as many to retire to *Canada* as he thought proper, and as I suppose not knowing better what to do with the residue, he permitted them to remain, on taking the oath of allegiance to the crown of *England*. The same officer made a vain attempt on *Canada*, and being returned unsuccessful, the *French* governor of *Canada* in November 1691, re-assumed the possession of *Port Royal*, and held it until 1610, when it was again taken by Colonel *Nicholson*, and by the 12th article of the treaty of *Utrecht*, the whole country of *Accadia* was ceded to the crown of Great Britain.

Here then is not only the first discovery, but what the lawyers call a continual claim on both *Accadia* and *Canada*, and the former being so absolutely and formerly ceded, it remains only in respect to the latter to be considered, whether, except by possession

well secured, the *French* have really any right to that colony. I am sensible of the virtue of possession, but even allowing this some face of right against continual claim, it will hardly extend that right to the back of our settlements, and give them even a fair pretence to intervene between them and the great western ocean, consequently, if we have power and right together, we have a fair pretence to impede their preceding without any breach of friendship on our part. That the *French* would communicate with *Louisiana* that way if they could, no one doubts, so they would, no doubt, with *Persia*, and their *India* settlements by *Egypt* or *Russia*, if the respective powers would permit them; but what this has to do with matter of right is not easily comprehended; especially when in argument they have no better claim to *Louisiana* than to *Canada*; and then it remains for them to shew, under what pretence, except their own convenience, they would interrupt our trade to the *Lakes*, and so on backward.

It follows from this seeming digression, that as the *French* have only a claim to *Louisiana* and *Canada* by possession, and it appears, our settlements are both from possession and discovery, which I think is by none doubted, it is plain we have the best right to the back-country, and having means to support that right, it is a kind of duty we owe to ourselves, to preserve it by the best means in our power, without being presumed, in any sense, the aggressors in case a war should ensue. The *French* may move in a line as far west as they please, either from *Louisiana* or *Canada* for any thing it concerns us, and why the *English* may not pursue the same course, lies upon our adversaries to make out in the best manner they are able.

It is upon this plan then that we propose to adjust the geography of *America*, and to determine the limits or boundaries of the respective nations, without regard to partiality on either side, that is to say, by the southern boundary of *St. Laurence* at the entrance, and the northern of *Mississipi*, and carrying them lines on due west, within those limits to the great western ocean, bound the *British* empire in *America*, *Hudson's-bay* excepted, and leave the *French* as much northern, or southern, from the respective lines, as they may have any kind of claims. And here we return back to consider the progress of our other settlements, so far as is necessary to give the reader a clear idea, and to establish in his mind a regular geographical distinction of the rights, interests, and claims of *Great-Britain* and *France* in contest.

New-

Newfoundland we not only find discovered, as has been mentioned, but also possessed, and three of the natives here in 14 Henry VIIIth, and this confirmed by a variety of concurrent circumstances, and without deducing the same down to the *Calvert* family, and thence to the present time, that right is immemorially confirmed by the treaty of *Utrecht* and *Aix la Chapelle*.

This necessarily leads us to *New England*, as the next province in course: this being under the direction of the *North Virginia* charter, was rather traded with than settled until the year 1619, when a congregation of *English* sectaries being for liberty of conscience resident in *Holland*, having heard of *America*, and presuming they might live there free from all kind of persecution. For this purpose they first obtained the king's licence, and next agreed with the *North* charter-counsel for lands in *Nova Scotia*; but being afterwards better informed, they engaged for a settlement farther to the southward, intending for *Hudson's river*, but were by the conduct of the master of the ship who carried them over, seated near *Cape Cod* in the latitude of 42, and there built new *Plymouth*, and this is the foundation whereon has been superfructed that great and thriving colony of *New England*.

The next, in course, is *New York*, discovered and sold, as has been said before, by *Hudson* to the *Dutch*, and by them settled, and in the latter end of the year 1664 conquered by the *English*, and so reduced again to the first right, as it still continues, and with it all the east and west *Jerseys*.

Pennsylvania, the next southward, was granted by charter 1680 to Mr. *Penn*, and great numbers of persecuted sectaries going over the same year, in 1681 he went in person, and having, besides the right of his charter, purchased the lands wanted of the natives, which is still the standing rule of the colony, and the numbers going over being many more in the time than to any other, it prospered accordingly, and is now nearly on a footing with *New England*, though settled so many years before.

Maryland, the next, remained until 1632 as a part of *Virginia*, when *Calvert*, Lord *Baltimore*, having resigned a patent which he had obtained for *Newfoundland*, had this country granted him, he sent over his brother, *Leonard Calvert*, with some *Roman* catholic gentlemen and other adventurers, who, on the 22 of *November* 1633 arrived there, and seated themselves, with the con-

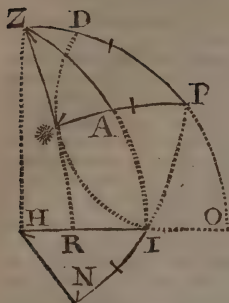
sent of the natives, at the mouth of a river, falling into that of *Potowmac*, which insall they called *St. George's river*; they there constructed the town of *St. Mary's*, and soon became a flourishing colony, as by this time, was that, now distinctly called *Virginia*; so that the next in order, as they are situate, is *North Carolina*.

This province, and that adjoining called *South Carolina*, tho' originally the discovery of the *Cabots*, for the crown of *England*, as has been shewn before, was attempted first to be settled by the *Spaniards*, then by the *French*, and at length, after various contests, abandoned by both, and the northern province in some measure settled by the *English* from *Virginia*; and in 1663 both provinces were granted by Charter to Lord *Clarendon* and others, between the latitudes of 31 and 36, and backwards to the *South Seas*. It was by the proprietors in 1728 surrendered to the crown, except one eighth reserved to Lord *Carteret*, now Earl *Granville*, and is become a very flourishing colony.

In respect to *Georgia*, the last settled of all our colonies, it may suffice to say, that it is within the bounds of our first discoveries, and of the *Carolina* limits; that we have made it our boundary to the *South*, and that it covers *Carolina*: That the charter was granted in 1732, and this, like most new colonies, was long establishing; but it is hoped will now prove a useful barrier of the *British* Empire in *North America*, tho' not constructed on so wise a Plan as *William Penn's* colony. And here I shall beg leave to make one conclusive observation, That however it is said, that in the multitude of counsellors is safety; yet is it certainly true, that in the prosecution of any great design, civil or military, one good head in the scene of action is of more value than one hundred at a distance; and suppose with that head there is a pure and upright mind.

And thus having completed my SUMMARY of discovery and settlement by the *English* in *America*, as far as respects our present dispute with *France*, I propose, in my next chapter, to give a like succinct Account of the state, and geography of this extended country, with some particulars necessary to elucidate our rights, and shew, that it is in our power, and evidently our interest to use that power, in such a warm and judicious pursuit of our claim, as may for the future put an entire end to all foreign pretensions.

(To be continued in our next.)

MATHEMATICAL QUESTIONS *Answered.**Question 11, answered by Mr. T. STREET of London.*

THE declination of the Moon at the time of observation was $18^{\circ} 30'$ N. nearly. And by the new property in *April Mag.* p. 56, as $\text{fine } IN : \text{fine angle } NHI :: \text{radius} : \text{co-fine of the true amplitude} = 71^{\circ} 30'$ North East, and $71^{\circ} 30' - 70^{\circ} 0' = 1^{\circ} 30'$ the variation of rifing easterly. Again, As $\text{fine } ZP : \text{radius} :: \text{fine } *P : \text{fine true greatest azimuth} = 71^{\circ} 36'$, and $72^{\circ} 0' - 71^{\circ} 36' = 0^{\circ} 24'$ West variation at the time of greatest azimuth. From which it appears that the needle had fluctuated $1^{\circ} 30' + 0^{\circ} 24' = 1^{\circ} 54'$ between the times of observation.

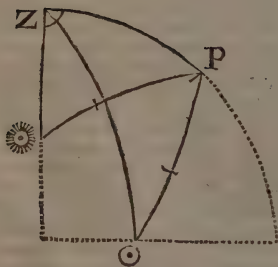
*We have received no true answer to this question, but the above.
Mr. Wildbore attempted a Solution, but without Success.*

Question 12, answered by Mr. CHARLES WILDBORE of Nottingham.

LET q = the S. of the declination, t = tangent of $9^{\circ} 30'$, also x and y = the sine and co-sine of the latitude of the place: Then (*per spherics*)
 $\frac{y}{x} : 1 :: q : \frac{xq}{y}$ = the tangent of the ascensional difference, and as $\frac{x}{y} : 1 :: q :$

$\frac{yq}{x}$ = the tangent of the time from 6 to due East, their sum, or $\frac{q}{xy - xyq^2}$

$= t \therefore xy = \frac{q}{t - q^2 t}$, which solved gives the latitude required.

The PROPOSER's Answer.

PUT x , and y , for the sine and cos. of half the $\angle s \odot PZ$, and $\odot PZ$; m, n , sine and cos. half their difference = half $\odot P \odot$; s = cos. $\odot \odot$; p = sine $P \odot$, comp. declinat. Then $\odot Z$, and $PZ \odot$, being each $= 90^{\circ}$, we shall have $nx - my = S. \odot PZ$; and $nx + my = S. \odot PZ$: in the $\triangle \odot PZ$, we easily get $pnx - pmy = S. PZ \odot$; and in the $\triangle \odot Z \odot$, the cos. $\odot Z \odot$ is found $= \frac{s}{pnx + pmy} = \text{fine } P$

$Z \odot$; consequently $\frac{s}{pnx + pmy} = pnx - pmy$.

By reduction $x = m^2 + \frac{s}{p^2}^{\frac{1}{2}} = 0.9998321 = \text{fine } 91^{\circ} 3'$; from which the latitude (being the compt. ZP) is easily found $= 51^{\circ} 22' 12''$.

Questions

New QUESTIONS to be answered.

Question 24. *By Mr. JOHN ASH.*

Suppose a spherical body, perfectly elastic, to fall freely, by the force of its own gravity, from the height of a 1000 yards, on the smooth surface of a firm rock, whose inclination to the plane of the horizon is 15° . Its greatest velocity, the distance of its second descent on the same plane, and the whole time of its continuance in motion are required?

Question 25.

By Mr. J. FISH of Crowl.

What dimensions must I give to a Joiner, to make a cubical box that will hold 2000 oranges of $2\frac{1}{2}$ inches diameter each; supposing oranges globular, and to keep that form?

Question 26.

By Mr. J. GILES of Gravesend.

IN taking an angle with the Theodolite on the side of a hill: if the plate of the instrument dip four degrees under the horizon, or true level, at right angles to the line of observation, and the hill descend ten degrees; what error will it cause in the angle, and how many links will the object be thrown out of its true place at the distance of ten chains?

Question 27.

By Mr. BAMFIELD of Honiton.

IF I borrow 100*l.* for the space of one year, or 12 months, and at the end thereof am to give 5*l.* for the same: What must I pay, according to the strict Rules of art, if I use the money but one Month?

Quest. 28. *By Mr. J. LIDDELL.*

TWO bodies C and D, proceed from a given point A (*i. e.* A N = 10) above the right line EF, in order to meet with EF in any given time *t*, whose spaces AE + AF de-

scribed thereby = 35, and their distance EF in the intersection = 29. *Quere*, how much are the lines AE and AF respectively, and the angles of inclination, with the velocity of each body?

Question 29.

By Mr. JOHN SHIPMAN.

Given the nearest distances *a* and *b* from A and C, the two acute angles of a right angled triangle, to the circumference of the inscribed circle; to find the triangle and circle?

Question 30.

By Mr. JO. GOODHEAD of Nottingham.

Given the convex superficies of the segment of a globe = 1256,64 = *s*, and that of its circumscribing cylinder = 1206,3744 = *c*, required the diameter of the globe?

Question 31. *By MECHANICUS.*

Supposing all the Planets, at any given time, should start from a line of conjunction with the Sun in any point of the ecliptic; in what time will they all be in conjunction again, either in the same point, or any other; and how many revolutions will each Planet make before they come all in a line again?

Question 32.

By Mr. JAMES HEMINGWAY of Norwich.

HAVING a Line of Hurdles BD = *a* = 75 fixed, and a moveable one BC = *b* = 45, thence to find how many Hurdles in a Line CD = *x* will, with the other two Lines, inclose 1 Acre, or Rood, 18 $\frac{62}{141}$ Poles?

Quest. 33. *By Mr. C. WILDBORE of Nottingham.*

IT is required to find the values of *x*, *y*, and *z*, when $x^4y^3 + ax^3 - y^3a^2 + 4a^4z$ is a maximum?

P

JOVE'S

JOVE'S Decision: Or, MINERVA and
VENUS eclipsed.

An IMITATION of Dr. YOUNG'S
Stile.

AS on a bank near some fair stream I stood,
Pleas'd to survey the clear transparent
flood,
That flow'd, meandering, thro' a verdant
mead,
Whose gaudy flowers around sweet odours
spread;
Methought I heard *Minerva* thus exclaim,
And often call on *Jove's* tremendous name:
" Shall impious mortals treat me thus with
scorn?

Think you, by me this usage can be borne?
Ere I was I president of learning stil'd;
Why am I then thus treated, thus revil'd?
Long since to me the sage has tribute paid;
I've been, 'till now, as wisdom's source
obey'd;

Then tell me, *Jove*, this sudden change de-
clare,
Pronounce the cause, for I'm prepar'd to
hear."

Thus answer'd *Jove*, " By pride you was
undone;

'Twas pride, *Minerva*, brought thy ruin on:
Long has *Eliza* bright, unrival'd, been
The darling favourite of Gods and men:
Eliza's wisdom has eclips'd your pow'r,
But haughty pride she does not boast; no
more

Shall mankind seek for wisdom at your shrine,
But hence that praise, *Eliza*, shall be thine."

Thus, to *Minerva*, spoke the angry God;
With rage she glow'd and vanish'd at his nod.
Bright beauty's goddess, *Venus*, next ap-
pear'd,

And *Jove*, omnipotent, with awe rever'd.
Her jettý hair in waving tresses flow'd,
Her eyes, her breasts, her mein amaz'd the
God.

She ask'd, " Why men her beauty did dis-
own,

Nor paid, as erst, their tribute at her throne?
Why she, who oft in lover's lays was seen,
Call'd by the name of beauty's mighty queen,
To whom of right all honour did belong,
Was found no more to grace the poet's
song?"

To which great *Jove* thus readily reply'd;
" The cause is plain, and easy to decide:
Know, *Venus*, then, from hence proceeds
that scorn,

The blooming, peerless *Colchester* is born.
Your fading beauty droops, and soon decays
Beneath her charms that more resplendent
blaze;

Therefore with her contend in vain no more,
But pay obedience to superior power."

Southampton,
April 26, 1755.

W. A.

* *Miss Colchester*, of H—b—e, in the County of Southampton.

WHAT subject shall a youthful poet chuse
For the first efforts of a virgin muse?
Shall he in fancy's maze bewilder'd stray,
And wanton careles in the flow'ry way?
Or shall he wake to manlier strains the lyre,
And sing as truth and virtue may inspire?
But sing to whom? The learned, or, the
great?

These have no wit, and *those* have no estate.
Do what he will, the poet's case is hard;
One cannot read, and t'other can't reward.
Cb. Condill.

TRANSLATION of Mr. WALLER'S
THYRSIS, a Youth, &c.
By Mr. HACKETT.

AVersâ solam Sacharissam virgine tædas
Thyrsidis infaustus deperiebat amor.
De grege Pieridum, velut alter *Apollo* canebat
Ille, imitabatur *Daphnidis* illa fugam.
Thyrsidis ad morem, cui mens rapit ignea
flammas,

Per saxa, et rupes it, duce amore, puer.
Thyrsis, abest neque enim lateri lethalis
arundo,

Per montes damas, rura per antevenit.
Jam fugienti instat. Nympham non forma
sequentis,

Sed docet auritam carmen inire moras.
Omnes, si excipias unam, miserantur aman-
tis,

Mira omnes numeris *Suada*, fatentur, ineft.
Inveniens laudes, quas non sperârat, amo-
rem

Ambiit, et lauros carpsit, *Apollo*, tuas.
C. Condill.

An EPIGRAM, by R. LEWIS.

PAINTERS, of old, who skilful were,
An hundred eyes to *Argus* drew;
But what a wonder, heav'ns! is here,
Nell sees an hundred ways with two.

An Hymn to SLEEP, in a Night of Sick-
ness.

HAIL! kind assuager of my wretched hours,
Who lullest all my pains in gentle rest,
My spirit wafting to the rosy bowers
Where health serene revives the happy
Guest:

How can't thou lead me from the sickly
gloom

Of burning *Febris*' sad malignant cell?
How from the dreary portal of the tomb,
To peaceful mansions, where the happy
dwell?
In

In thy soft arms embrac'd, I feel no more
The sinking terror nor the sighs of grief;
But view the ever-blest *Elysian* shore,
And hear the *Seraphs* sing to my relief.
Or, lost to sense, oblivion wraps me round;
Releas'd from all the labours of the day:
So death remains, and is but rest profound,
When life, and care, and toil are fled away.
O! when shall I from this low earth remove,
To where the learned cannot here define,
A glorious immortality above,
Into a world invisible as thine?

April 16, 1755.

J. Walsh.

To CORNELIA.

WHEN, my *Cornelia*, *Flora's* beauteous
train,
Shall droop its head, by gentle show'rs of
rain,
Shall bloom at night, its colours fade by day,
Or vegetation hate *Apollo's* ray:
When little ants shall industry abhor,
And anxious seek the scatter'd grain no
more;
Break thro' their laws and anarchy embrace,
And each laborious emmet meet disgrace:
When Bees along the aromatic grove,
No more with penetrating eyes shall move,
Or eager in the gay enamell'd vale,
The scented flow'r with buzzing noise assail;
Their slender thighs no more with honey
blest,
But they the garden's product shall detest:
When little lambs, no more by mirth impell'd,
With sporting innocence surround the field;
But savage turn'd, shall suddenly explore
Each lonesome grove, embrew'd with clotted
gore:
When *Jove's* great bird shall in the valleys
droop,
Nor on the prowling hawk with justice stoop;
Nor longer then, with elevated flight,
In highest air attract the human sight;
Shall from the glorious sun direct his view,
And pitchy darkness eagerly pursue:
When the huge whale from *Zembla's* gelid
tides
In *Ormus's* gulph shall lave his glowing sides,
Shall the vast depth's eternal coldness shun,
And on the surface hail the genial sun:
When all that this terraqueous ball contains,
Attraction's pow'r and gravity disdains;
Or when the stars in silent order roll,
Scorn nature's laws and move to either pole;
The planets in their orbits cease to move,
And dire confusion's pow'r extend its reign
above:
Then, and then only, in that hapless hour,
Shall your *Constantius* cease your charms
t'adore.

Constantius.

On Sir ISAAC NEWTON.

THE plan of *Ptolemy*, and *Tycho's* scheme,
Are now no better than an idle dream;
Newton arose, shew'd how each planet
mov'd,
And what they wand'ring call'd he constant
prov'd:
Founded on truth his problems stand secure,
And with the sun his System shall endure.
He was the first that could unerring trace
Each orbit thro' immensity of space;
Where comets thro' the void revolving flow,
Their course oblique and settled period
know:
Guided by him when we survey the whole,
Worlds beyond worlds which by him mea-
sur'd roll,
And with the grand idea fill the soul.
What is this point of earth; this mortal seat?
How little this appears, and he how great!

To the Right Hon. Miss T—R—SIA
M—CK—ZIE, on her Return from
the South of France.

I.

WHEN *Phæbus*, roseate God of day,
Visits more southern skies;
All nature mourns his absent ray,
Droops, sickens, fades, and dies.

II.

But when his radiant course anew,
Bends to our western main:
The fields assume a livelier hue,
And nature smiles again.

III.

Thus in *M—ck—zie's* brighter eyes
A various fate prevails:
Chearless, if she their light denies,
But blest beneath their smiles.

Gubznf.

DORINDA, an Elegy.

YE swains, that tend your fleecy care,
Ye sportive nymphs, that wanton are,
Ye flow'ry banks, that verdure shed,
Droop, droop your heads, *Dorinda's* dead!
Alas! what nymph could equal boast,
Her lovely charms, for ever lost;
Her rolling eyes, that beauty shone;
The lilly with the roses grown;
The shape with ev'ry freedom crown'd,
And in each place proportion found;
The pleasing smile, the graceful air,
That caus'd the envy of the fair.
Alas! how fleet are all our joys,
When death so soon our hope destroys!
To day the promis'd bud appears,
The mournful yew to-morrow rears.
Whene'er she talk'd, the groves around,
Wou'd echo soft the pleasing sound,

P 2

The

The mossy bank, the purling rill,
 The flow'ry mead, the rising hill,
 Wou'd doubly please the wand'ring eye,
 By nature dress'd in gay variety;
 Ev'n winter's storm wou'd mild appear,
 And summer reign through out the year.
 But ah! how chang'd the pleasing scene,
 Since you, *Dorinda*, left the green!
 No more the bank or purling rill,
 The flow'ry mead or rising hill,
 Can please, or former beauties show,
 Unless to kindle fresh our woe.
 But winter's storm o'er all abounds,
 And spring, and summer knows no rounds:
 Eternal frost, with aged care,
 And with'ring envy, with despair,
 Triumphant reign in youthful breasts
 Alone, the sad, but welcome guests.

HORACE. ODE XXXI.

The Poet's Prayer.

WHEN at the consecrated shrine
 The suppliant bard intreating stands,
 And from his goblet pours the wine,
 What does he beg at *Phæbus*' hands?

No plenteous harvests, that array
Sardinia's fields with bending grain;
 No kindly herds, that pleasing stray
 On hot *Calabria*'s sunny plain.

No shining gold or iv'ry craves,
 Or ought of *Inda*'s costly pride;
 No lands, where silent *Liris* laves,
 With foaming flood, its fertile side.

Let those, to whom kind *Fortune* shares
Calenian vineyards, prune the vine;
 Rich merchants change their *Syrian* wares,
 And drain their golden cups of wine.

(The merchants, heav'n's peculiar care,
 Or else their vessels ne'er cou'd roam
 Th' *Atlantic* ocean thrice a year,
 And thrice return in safety home.)

Olive and mallows deck my board,
 The wholesome vegetable kind;
 O, let me thus alone be stor'd
 With health of body, health of mind!

When old, not despicable grow;
 Be able still to tune my lay;
 On others; other gifts bestow,
 O, *Phæbus*, this is all I pray!

By the desire of several of our Subscribers we
 insert the following.

PROLOGUE: spoken by Mr. GAR-
 RICK, in the Character of a Sailor,
 fuddled, and talking to himself. He
 enters, singing,

How pleasant a sailor's life passes—

WELL, if thou art, my boy, a little mel-
 low;
 A sailor, half-seas o'er—'s a pretty fellow!

What cheer ho? *do I carry too much sail?
 * to the pit.

No—tight and trim—I scud before the gale.*
 * be staggered forwards, then stops.

But softly tho'—the vessel seems to heel:
 Steddy! my boy—the must not shew her
 keel.

And now, thus ballasted—what course to
 steer?

Shall I again to sea—and bang mounfeer?
 Or stay on shore, and toy with Sall and Sue—
 Dost love 'em, boy? By this right hand, I do.
 A well-rigg'd girl is surely most inviting:
 There's nothing better, faith,—save flip and
 fighting:

I must away—I must—

What! shall we sons of beef and freedom
 stoop,

Or low'r our flag to slavery and stoop?

What! shall these parly-vous make such a
 racket,

And I not lend a hand, to lace their jacket?
 Still shall old *England* be your *Frenchman*'s
 butt?

Whene'er he shuffles, we should always cut.
 I'll to 'em, faith,—avast—before I go—
 Have I not promis'd *Sall* to see the show?

Pulls out a play-bill.

From this same paper we shall understand
 What work's to night—I read your printed
 hand.—

First let's refresh a bit—for faith, I need it—
 I'll take one sugar-plumb*—and then I'll
 read it.

* Takes some tobacco.

He reads the play-bill of *Zara*,
 which was acted that evening.

At the the-atre royal—*Drury-lane*—
 will be presen-ta-ted a tragedy called—
 S A R A H.

I'm glad 'tis *Sarah*—then our *Sall* may
 fee

Her name-sake's tragedy: and as for me, }
 I'll sleep as sound, as if I were at sea.

To which will be added,
 a new masque.

Zounds! why a masque? We sailors hate
 grimaces:

Above-board all, we scorn to hide our faces.
 But what is here, so very large and plain?

BRI-TA-NIA—oh *Britania*!—good again—
 Huzza, boys!—by the *Royal George* I swear,
Tom coxen, and the crew, shall strait be there.
 All free-born souls must take *Bri-ta-nia*'s
 part,

And give her three round cheers, with hand
 and heart. [going off, be stops.

I wish you land-men tho', would leave your
 tricks,

Your factions, parties, and damn'd politicks:
 And like us, honest tars, drink, fight, and
 sing:

True to yourselves, your country, and your
 King.

ERRATA in No. V. *Miscellaneous Correspondence*, p. 74, l. 14, for periphery height, read perpendicular height: p. 74, l. 19, for 21 Yds. 5 In. read 21 Yds. 25 In.

ACHRONOLOGICAL MEMOIR of Occurrences. For JUNE, 1755.

Turkey.

ABove 80,000 Workmen were daily employed in April last about making good the Damages, occasioned by the late dreadful Earthquakes that happened at Constantinople and the Parts adjacent. The Castle of the Seven Towers, and the Wall that was thrown down between the Port of Adrianople and the Arsenal, was finished when the last Advices from thence came to England.

Poland. In April last, the whole Town of Brizeck, or at least the greatest Part of it, which belonged to Count Flemming, Great Treasurer of that Province, was, by Fire, unhappily reduced to Ashes.

Italy. For some Days successively in April last, a Kind of thick Smoke had issued from Mount Vesuvius; from whence the Inhabitants round about it were apprehensive of a new Eruption.

Mount *Ætna*, likewise, after smoking for some time, on the 9th of March last, threw out a prodigious Quantity of Stones, which were soon followed by a hot, fluid Matter, which looked, when cold, like Sand calcined; and after that, a great Quantity of sulphureous Matter ran flaming down the Mountain, and covered the Ground for a considerable distance.

On the 11th of May last, the famous Man-

drin was seized in his Bed at Rochfort by a Body of Men, dressed like Peasants and Labourers, but well armed, and prepared for any Opposition.

France. Marshal Lowendahl died on the 27th of May last, at his Apartments in the Palace of Luxembourg, in the 55th Year of his Age, of a Mortification in one of his Legs, attended with a violent Fever.

Plantation News. By Advices from Virginia, dated April 16, we hear, that all the Governors on the Continent, with General Braddock and Commodore Keppel, had a Meeting at Annapolis a few Days before, when a Plan of Operations was concerted. They went afterwards to the Camp at Alexandria, and reviewed the Troops, which amount to about 6000 Men, all healthy and in high Spirits, who immediately after marched for Wills-Creek, where they are to wait for farther Orders. The Camp is plentifully supplied with Money and Provisions of all Kinds.—By other Advices, since, we are assured, that all the Men of War and Transports from Ireland are safe arrived; and immediately thereupon they were ordered up to Alexandria, and from thence to Wills-Creek, to join the Virginia Forces.

L O N D O N.

May 23. **B**y a Letter from Portsmouth, we are told, that Sir Edw. Hawke, Vice-admiral of the White, and — West, Rear-admiral of the Red, remain at Spithead, and 26 Men of War, 19 of which are of the Line, in excellent Condition, and tolerably well manned. The Concourse of People, of all Conditions, to see the Fleet, encreases; and the weekly assemblies at Portsmouth are extraordinary brilliant.

The Parliament stands prorogued to Tuesday the 1st of July next.

On the 9th of June instant, his Grace the Duke of Marlborough, Lord Anson, and the Right Hon. Henry Fox, Esq; took the Oaths in the Court of Chancery, to qualify themselves for Lords of the Regency.

June 12. Above 2200 Salmon were sold at Newcastle Market, all taken that Morn-

ing in the Tyne. The like Quantity has not been taken in two Tides for these many Years last past.

16. His Royal Highness the Duke of Cumberland went in State to Westminster Hall, and took the Oaths in the Court of Chancery, to qualify himself for first Lord of the Regency.

The famous Mandrin was executed the 26th of May last at Valence, in lower Dauphine, and was as remarkable for his decent Deportment, and sincere Repentance for his past ill-conduct, as his invincible Intrepidity during his actual Tortures on the Wheel; since he promised his Father-confessor the Day before, that he would not shed a Tear on that Occasion; and, it is said, he punctually kept his Word, notwithstanding he received nine several Blows in various

various Parts of his Body, before he was indulged his Coup de Grace; and notwithstanding he was but 29 Years of Age at the Hour of his Execution.

Circuits appointed for the Summer Assizes.

WESTERN CIRCUIT.

Lord Chief Baron Parker, Mr. Justice Wilmot.
Southampton, Tuesday July 15, at the Castle of Winchester.

Town and County of Southampton, Saturday 19, at Southampton.

Wilts, the same Day, at New Sarum.

Dorset, Thursday 24, at Dorchester.

City and County of Exeter, Monday 28, at the City Guildhall.

Devon, the same Day, at the Castle of Exeter.

Cornwall, Tuesday August 5, at Bodmin.

Somerset, Tuesday 12, at the City of Wells.

City and County of Bristol, Saturday 16, at the City Guildhall.

NORFOLK CIRCUIT.

Mr. Justice Clive, Mr. Justice Birch.

Bucks, Monday July 7, at Buckingham.

Bedford, Thursday 10, at Bedford.

Huntingdon, Saturday 12, at Huntingdon.

Cambridge, Monday 14, at Cambridge.

Suffolk, Thursday 17, at Bury St. Edmund's.

Norfolk, Monday 21, at the Castle of Norwich.

City of Norwich, the same Day, at the City Guildhall.

OXFORD CIRCUIT.

Mr. Justice Forster, Mr. Baron Smyth.

Berks, Saturday July 12, at Abingdon.

Oxon, Tuesday 15, at Oxford.

Worcestershire, Saturday 19, at Worcester.

City of Worcester, the same Day, at the City of Worcester.

Staffordshire, Thursday 24, at Stafford.

Salop, Monday 28, at Shrewsbury.

Herefordshire, Saturd. Aug. 2, at Hereford.

Monmouthshire, Thursd. 7, at Monmouth.

Gloucestershire, Saturday 9, at Gloucester.

City of Gloucester, the same Day, at the City of Gloucester.

MIDLAND CIRCUIT.

Hon. Sir Thomas Denison, Knt. Hon. Heneage Legge, Esq.

Northampton, Tuesday July 8, at Northampton.

Rutland, Friday 11, at Oakham.

Lincoln, Monday 14, at the Castle of Lincoln.

City of Lincoln, the same Day at the City.

Nottingham, Thursday 17, at Nottingham.

Town of Nottingham, Friday 18, at the said Town.

Derby, Saturday 19, at Derby.

Leicester, Wednesday 23, at the Castle of Leicester.

Borough of Leicester, Thursday 24, at the said Borough.

City of Coventry, Saturd. 26, at the said City.

Warwick, Monday 28, at Warwick.

HOME CIRCUIT.

Lord Ch. Just. Rider, Lord Ch. Just. Willes.

Hertford, Monday July 28, at Hertford.

Essex, Wednesday July 30, at Chelmsford.

Kent, Monday August 9, at Lewes.

Surry, Wednesday August 13, at Croydon.

NORTHERN CIRCUIT.

Mr. Baron Adams, Hon. Mr. Justice Batburst.

City of York, Monday July 14, at the Guildhall.

Yorkshire, the same Day, at the Castle of York.

Durham, Wednesday 23, at the Castle of Durham.

Newcastle upon Tyne, Tuesday 29, at the Guildhall.

Northumberland, the same Day, at the Castle of Newcastle.

Cumberland, Wednesday August 6, at the Castle of Carlisle.

Westmorland, Tuesday 12, at Appleby.

Lancashire, Saturday 16, at the Castle of Lancaster.

NORTH WALES.

Hon. Will. Noel, Ch. Just. Hon. John Talbot.

Montgomeryshire, Wednesday, August 6, at Poole.

Denbighshire, Tuesday 12, at Wrexham.

Flintshire, Monday 18, at Flint.

Chefhire, Saturday 23, at the Castle of Chester.

SOUTH WALES.

Hon. John Williams, John Harvey, Esqrs.

Presteign, Thursday, August 7.

Brecon, Wednesday 13.

Cardiff, Tuesday 19.

Bath. On the 21st of May, in the Night, Crickmore-mills, belonging to Israel Dunford, Jun. by Accident took Fire, which burnt with such Fury, that the Mills, with the Dwelling-house, &c. were entirely consumed. The Family very narrowly escaped being burnt in their Beds. By this Misfortune, nothing being insured, the unhappy Sufferers are reduced from a Competency to great Necessity and Distress.

Ireland, May 13. His Excellency the Lord Lieutenant was pleased to appoint the Rt. Hon. Lord Frederic Cavendish, Lt. Col. John Campbell, Lt. Col. George Jocelyn, Major James Gibson, Capt. John Rutter, and Capt. Henry Boyle Walsingham, to be his Aid de Camps. — And Rob. Lowth, D. D. to be his first Chaplain. — The same Day his Excellency, attended by the Right Hon. the Lord Moleworth, viewed the

Stores,

Stores, Artillery, and Arms, in the Arsenal of Dublin-castle, and at his Departure exprest an entire Satisfaction at the Order and good Condition of each Particular.

On the 17th of May last, at an Assembly of the Right Hon. the Lord Mayor, Sheriffs, Aldermen, and Common-council, the Freedom of the City of Dublin, in a Gold Box, was unanimously voted to his Excellency the Marquis of Hartington; and, at the same Time, the Freedom of the City was voted to the Right Hon. Henry Seymour Conway, Esq; Secretary to his Excellency.

On the 21st of May his Excellency paid a visit to the University of Dublin, where he

was received with great Formality and Respect; and at the same Time the Degree of Honorary Doctor of Laws was presented to him in a Gold Box.

On the 25th of May his Excellency set out from Dublin Castle to review the Forces and Garrisons in several Parts of this Kingdom, attended by the Earl of Rothes, Reviewing-general, Col. Conway, Principal Secretary of State, Lord Frederic Cavendish, Col. Campbell, and several other Officers of Distinction. — Orders will be issued out very speedily for an Encampment of 4800 Men in the Phoenix Park.

Drury-Lane.

May 15. *Love for Love*. — Tom Thumb.

16. *The Chances*. — Britannia.

19. *Henry VIII*. — Proteus.

20. *No Play* this Night.

21. *The Mourning Bride*. — Britannia.

22. *No Play*.

23. *King Lear*. — Anatomist.

27. *Barbarossa*. — Britannia. — The last for this Season.

Covent-Garden.

The Merry Wives of Windsor. — Double Disappointment.

The Double Dealer. — Scapin.

The Suspicious Husband. — Lying Valet.

The Committee. — Contrivances.

The Jubile. — Orpheus.

The Constant Couple. — Orpheus. — The last Performance for this Season.

THE RURAL CALENDAR.

Vaux-hall. *This delightful Spot continues to be the Admiration, as well of Foreigners as the Resort of all others, who have either Leisure or taste to frequent it. The Band of Music is a very grand one; and the vocal Performers give sufficient Demonstration, that it is Luxury, and Partiality only, that induced certain Persons to encourage Exotics.*

Ranelagh. *What we have said of Vaux-hall may, in a great measure, be applied to this elegant Place of Diversion; and the Performances of Mr. Beard and Miss Young cannot be too much admired.*

Sadler's Wells, Islington. *This Theatre (for such it is) is so well regulated under the present Manager, that a better Company is not any where to be met with. The Performances of Miss Wilkinson are both justly and universally admired; and she is attended to with great Pleasure even by those, who heretofore could not look upon Feats of this Kind with any Degree of Patience.*

Marybone. *Entertainments as usual, except that they have added Fire-works, which, in this Place, have a singular Effect and Propriety.*

BIRTHS.

May 18. The Lady of — Toftcroft, Esq; Daughter of Sir John Ogilby, Bart. delivered of a Son.

21. The Dutchess of Ancafter, of a Son and Heir.

22. The Lady of Lord Guernsey, of a Son.

24. Mrs. Thistlethwayte, of Tytherly in Hampshire, of a Son and Heir.

June 6. The Wife of James Crake, of Richmond, Yorkshire, of three Daughters, all likely to do well.

14. The Wife of Mr. Lloyd, an eminent Oilman in the Strand, of a Son and Daughter.

MARRIAGES.

May 19. The Hon. Charles York, second Son to the Rt. Hon. the Lord Chancellor, to Miss Freeman of Hertfordshire.

Charles Holte, Esq; to Miss Jesson.

22. Mr. Thomas Neale, Surgeon, to Miss Baylis of Gloucestershire, with a Fortune of 5000l.

Mr. Joseph Richardson, Bookseller, to Miss Molly Campden.

23. Philip Vivyon, Esq; to Miss Knight.

24. Davis Davenport, Esq; to Miss Phoebe Davenport.

Mr. William Fortescue, Linnen-draper, to Miss Judith Dickenson, with a Fortune of 6000l.

26. James Forster, Esq; Barrister at Law, to Miss Strange.

29. The Rev. Mr. Griffies, Rector of Chipstead in Surry, to Miss Thackeray, Daughter of the Rev. Archdeacon of Surry.

Mr.

Mr. Tho. Green, jun. an eminent Merchant, to Miss Susanna Mason, with a Fortune of 4000 l.

Anthony Sawyer, Esq; Nephew to Lord Feversham, to Miss Harcourt, with a considerable Fortune.

June 1. Mr. Robert Palmer to Miss Wake-lyn, with a considerable Fortune.

9. The Rt. Hon. John Earl of Glasgow to the Hon. Miss Betty Ross, Daughter of the late Lord George Ross.

12. John Carter, Esq; Son of the Rev. Dr. Carter, to Miss Underdown, Daughter and Heiress of John Underdown, Esq;

DEATHS.

May 8. Ambrose Goddard, of Swindon in Wiltshire, Esq;

13. The Lady of Robert Dundas of Armistoun, Esq; his Majesty's Advocate for Scotland.

15. The Rev. Mr. Hudson Martin, of Corston in Wiltshire.

19. Mrs. Vaughan, Wife of the Hon. Wilmot Vaughan, Esq;

20. Dame Barbara Ward, Relict of Sir Edward Ward, Bart. late of Bixley, Norfolk.

Mr. James Oldfield, a Callicoe-Printer, and his Wife some few Minutes after him.

21. Jasper Wade, Esq; formerly an Italian Merchant.

Thomas Henley, Esq; Brother to Robert Henley Ongley, Esq; Member of Parliament for the Town of Bedford.

23. Edward Mountley, Esq;

Mr. Thomas Smith, sen. Groom of his Majesty's Stud at Hampton Court.

24. Hugh Cholmley, of Whitby, Esq; late Surveyor of his Majesty's Board of Works.

Henry Drax, Esq; Member of Parliament for Wareham, Dorsetshire.

25. Sir Charles Chester, Bart.

31. The Rev. Mr. Dubourdieu, Rector of Kirby Misperton in Yorkshire.

The Rev. Mr. Allen, late Vicar of Kettering, in Northamptonshire.

Sir Henry Every, of Egginton, Derbyshire, Bart.

Andrew Hill, Esq; formerly Member for Bishops-castle, Shropshire.

June 1. William Clarke, Esq; one of the principal Clerks of his Majesty's Exchequer.

2. Dr. Francis Dickens, senior Fellow of Trinity Hall, and Professor of Civil Law in the University of Cambridge.

3. The Lady of Anthony Keck, Esq; Aunt to the Duke of Hamilton.

Henry Spelman, Esq;

Alexander Mackenzie, Esq;

Mr. Charles St. Eloy, a Proctor in the Bishop of London's Court at Doctors Commons, and a Clerk in the Prerogative Office,

5. The Right Hon. the Marchioness of Granby.

6. Stephen Ryder, Esq;

15. Felix Calvert, Esq; of Furneux Pelham in Hertfordshire.

Sir Richard Hilton, Bart.

17. The Rev. Mr. Bennet, Rector of Aldborough.

18. Thomas Longman, Esq; Bookseller, who, a few Years since, paid his Fine to be excused serving the Office of Sheriff of this City.

Civil and Military Preferments.

Mr. Edward Scovell appointed a General Surveyor of the London-Distillery.

Mr. Mafhader, Distillery-Surveyor; and Mr. Gargett Brandy-Stock-Surveyor.

Mr. Robertson, F. R. S. Head Master of the Royal Academy of Portsmouth.

Mr. Stort, senior Groom of his Majesty's Stud at Hampton Court, in the Room of Mr. Thomas Smith deceased; and Mr. James Gregory appointed the other Groom, in the Place of Mr. Stort.

Robert Rodham appointed Commander of the Greenwich at Spithead.

Mr. William Knight to be one of the Proctors of the Prerogative Court at Doctors Commons.

Mr. William Stubbs appointed one of the Clerks in the Prerogative Office, in the Room of Mr. Charles St. Eloy, deceased.

Mr. John Reed, one of the Common-council-men of Billingsgate Ward, appointed City Carpenter, in the Room of Mr. Cordwell, deceased.

Geo. Cuthbert, Esq; Physician, and Mr. Gregory Carlos, Surgeon, appointed to have the Care of the sick and hurt Seamen in the new Hospital at Haesler near Portsmouth.

The Degree of Doctor of Civil Law was, on the 14th of this Instant June, conferred on the Rt. Hon. the Earl of Sherburne by the University of Oxford, in full Convocation.

ECCLESIASTICAL PREFERMENTS.

The Rev. Mr. John Ball, appointed one of the Earl of Lincoln's domestick Chaplains.

The Rev. Mr. Thomas Trimley, M. A. to the Rectory of Lillington in Cornwall.

The Rev. William Becket, M. A. to the Vicarage of Morden.

The Rev. Mr. John Scott, appointed Chaplain to his Majesty's Ship the Greenwich, commanded by William Holbourne, Esq;

The Rev. Robert Lowth, D. D. appointed Chaplain to his Excellency the Lord Lieutenant of Ireland.

The Rev. Mr. Richard Dayrell presented with the Degree of Doctor of Divinity by the Archbishop of Canterbury.

The

The Rev. Mr. Edmund Plumpton, to the Rectory of Everingham in Yorkshire.

The Rev. Mr. John Neale, to the Rectory of Tollerton in Nottinghamshire.

The Rev. Mr. Tudor, appointed Chaplain to his Majesty's Ship the Eagle.

The Rev. Mr. Fox to the Living of Uffculme, in the County of Devon.

The Rev. Sampson Jordan, B. A. to the Rectory of Lodham in Surry.

The Rev. Mr. Henry Skey, appointed one of the domestic Chaplains to the Earl of Berkley.

The Rev. Mr. Charles Dickenfon, to the Rectory of Withcott, together with the Donative of Ouston, in the County of Leicester.

The Rev. Mr. Benjamin Venn, to the Rectory of St. Peter in the Vale, Wiltshire.

The Rev. Mr. James Slater, appointed Morning Preacher of St. James's Clerkenwell.

The Rev. Mr. Knock, to the Curacy of St. Clement's, East-cheap.

The Rev. Mr. Valentine Lumley, to the Rectory of Bradfield in Norfolk.

The Rev. Mr. Owen Jones to the Vicarage of Cornway in Carnarvonshire.

The Rev. William Pinkey, M. A. one of Minor Canons of St. Paul's to the Vicarage of Charing in Kent, worth upwards of 150l. per Ann.

The Rev. William Trevor, M. A. to the Vicarage of Barrow, in Lincolnshire.

The Rev. Mr. Green chosen Lecturer of St. John's at Wapping.

The Rev. Mr. Thomas Batman to the Rectory of Thelnetham in Suffolk.

The Rev. George Stockwell, M. A. appointed one of the Domestic Chaplains of the Earl of Radnor.

The Rev. Mr. Marsh, to the Rectory of Calmington in Shropshire.

The Rev. Mr. Charles Tarrant, presented to the Sub-deanery of Salisbury.

The Rev. Mr. Seward, Canon of Litchfield, installed into the Prebend of Lyme-Regis, in that Cathedral.

The Rev. Jonathan Barron, M. A. to the Rectory of Megavissy, in the County of Cornwall.

The Rev. Mr. Richard Long, B. A. to the Vicarage of Langley, in the County of Hants.

The Rev. James Bird, M. A. appointed one of the Domestic Chaplains of the Earl of Ashburnham.

The Rev. John Nicholls, L. L. B. to the Rectory of Culmington, in the County of Salop, worth 180l. per Annum.

The Rev. Mr. Humphrey Christian to the Rectory of Palgrave in the County of Suffolk.

Dispensations to hold two Livings.

The Rev. Thomas Key, M. A. Rector of Wickham, otherwise Wickham Bruis, in the County of Kent, to hold, with the said Rectory, the Vicarage of East-church in the Isle of Shepey, worth upwards of 200l. per An.

May 29. The Rev. William Murden, B. D. Chaplain to Lord Onslow, to hold the Rectory of Merrow in the County of Surry; and also the Vicarage of Shalford, with Bramly annexed, worth upwards of 250l. per An.

The Rev. William Tafwell, M. A. Chaplain to the Rt. Rev. John Lord Bp. of Bristol, to hold the Vicarage of Wotton-Under-Edge, in the County of Gloucester; together with the Vicarage of Almondsbury in the said County, worth 280l. per An.

June 9. The Rev. Samuel Speed, M. A. Chaplain to the Earl of Dartmouth, to the Rectory of Worthy-Martyr in the County of Southampton; together with the Rectory of Ludtheffe, otherwise Lichfield, in the same County.

The Rev. Clement Elfwood, M. A. Chaplain to the Earl of Oxford, to the Rectory of Ibberton, in the County of Dorset; and also to the Rectory of Corton-Denham, in the County of Somerset.

The Rev. Richard Wright, M. A. Chaplain to the Earl of Berkley, to the Rectory of Bellow, with Alley united thereto, in Lincolnshire; and also to the Rectory of Tointon St. Peter, in the same County.

B—KR—TS.

May 27. *Thomas Hobbs, of Bristol, Currier. Edward Seabrooke, of Lincolnsh. Woolstapler. William Shallcross, of Southwark, Tobaccoist.*

31. *Jos. Chapman, of London, Woollen-draper. Isaac Dupré, of Spittlefields, Silk-weaver, Thomas Long, of Kent, Innholder.*

Edward Bertles, of Southwark, Cheesemonger.

June 3. *Jaspar Bezer, of Southwark, Vintner.*

Peter Joyce, of London, Merchant.

John Thorp, of Bristol, Hosier.

7. *Joseph James, of Bristol, Haberdasher.*

Will. Richardson, of Devonshire, Lime-burner.

Peter Duncan, and John Duncan, of Birmingham, Chapmen.

Thomas Leversuch, of Fareham, Stone-Mason.

George Mennell, of Shadwell, Linmen-draper.

10. *William Dutchman, of Scarborough, Bricklayer.*

Robert Bromley, of Chester, Cheese-factor.

14. *George Wray, of Shoreditch, Distiller.*

17. *John Upton, of Lancashire, Whitster.*

John Faulcon, of Surry, Shopkeeper.

21. *John Webb, of Dunstable, Grocer.*

John Topham, of London, Worsted-seller.

Nathaniel Ledyard, of Shoreditch, Handkerchief-Printer.

William Gayner, of Bristol, Grocer.

BOOKS published since our last.

A New Collection of Voyages, 3 Vols. 12mo. with many Copper Plates. *Owen*. 10s. 6d.

Essay on the Necessity of forming an Academy for Painting, Sculpture, &c. 6s. *Robinson*.

Dr. Hutcheson's System of Moral Philosophy, in three Books, 2 Vol. 4to. Glasgow, printed and sold by R. and A. Foulis. 4to. Price 1l. 1s. few'd. — The Author's Merit from his Ideas of Beauty and Virtue, and his Essay on the Passions, cannot but be well known to the Public. His Design in the above Work (in the Words of the Preface to it) is first, to unfold the several Principles of the Human Mind, as united in a Moral Constitution; and from thence to point out the Origin of our Ideas of Moral Good and Evil, and of our Sense of Duty, or Moral Obligation; and then to enquire what must be the supreme Happiness to a Species constituted as Mankind are: And then he proceeds to deduce the particular Laws of Nature, or Rules necessary to be observed for promoting the general Good in our common Intercourses with one another, as Members of Society.

London in Miniature. 3s. *Corbett*.

Lydia: Or, Filial Piety. 6s. *Scott*.

Memoirs of the Affairs of Scotland. 3s. *Millar*.

Earl Pawlet's Motion on his Majesty's going abroad. *Davis*. 6d.

The Rev. Mr. A. Portal's Translation of Æschines's Orations against Ctesiphon and Demosthenes de Corona. 5s. *Withers*.

Mr. Romaine's Discourse upon the Self-existence of JESUS CHRIST. *Worral*. 6d. — which we apprehend will be look'd into for the Novelty of the Title, and the seeming Paradox it undertakes to prove.

Sharpe (Archdeacon) his Examination of Hutchinson's Exposition of Cherubim. 5s. *Knapton*.

Dr. Gregory Sharpe's Introduction to universal History, translated from the Latin of Baron Holberg. 6s. — This Work, we believe, the Public will judge the best, the fullest, and at the same Time the most concise that has ever appeared on the Subject; and is illustrated with such Notes, explanatory and critical, as do great Honour to the very ingenious and learned Translator. 'Tis to be wished his uncommon Abilities (would his Health permit) were employ'd in a Work much wanted — a clear and concise Method of studying History, both antient and modern.

— his Argument in Defence of Christianity, from the Concessions of Adversaries, &c. — A Piece, we persuade

ourselves, no Friend to Revelation can read without the highest Satisfaction in the Author's Management of the Argument; and equal Admiration of the surprizing Fund of Learning he appears Master of. This Discourse, we apprehend, will be a greater Blow to Infidelity than many a larger Work of the Kind, and would have more alarmed Lord Bolingbroke (had he been living) than most of the writings against him.

Dr. Taylor's Elements of the Civil Law, &c. The Author, towards the conclusion, gives a hint of his Intention to improve these Elements into a System, at some future Time: May Providence spare the Life of a Gentleman of his fine Genius, and thorough Knowledge, as well as great critical Skill in the Grecian and Roman languages, for the Execution of it, who, we doubt not, will diffuse new Lights over a Science which, tho' cultivated by several very able men, yet needs them! — The present work will, we imagine, not only be useful to young Gentlemen who study the Civil Law in the Universities, but entertaining and improving to able Civilians themselves, by the Explanations (some of them quite new) they will here meet with of several Passages in the Roman Writers relating to the Manners, Rights, and Customs of that People.

Trenchard's Essays; 1st, on Miracles; 2dly, on Treaties; 3dly, on Elections; 4thly, on controverted Elections; 5, on Offices and Corruption; 6, on practicable Men; 7, on Frugality. *Millar*. 1s. 6d. fewed.

Walker (Sam.) his practical Discourse, entitled the Christian. 2s. 6d. *Owen*.

Foreign Books, published in the Months of January, February, and March, continued.

Verhandeligen uytgegeeven door de Hollandse Maatschappij der Wetenschappen, te Haerlem. That is, Memoirs of the Dutch Society of Sciences at Harlem. Vol. I. — This Volume consists of a great Number of philosophical, and some medicinal Pieces.

Traité des Sensations. A Treatise of Sensations. By the Abbé de Condillac. 2 Vol. 12mo. — The Author here supposes that there is a marble Statue interiorly organized like a human Being: This Statue he animates, and communicates to it proper Impressions, in order to make it successively experience the various Sensations of human Nature.

Grammaire Française, ou la manière dont les personnes polies & les bons Auteurs ont coutume de parler & d'écrire. Par l'Abbé de Wailly. — This

This Grammar is wrote with great Clearness and Perspicuity, and the Author confirms his Principles by adding instructive and agreeable Examples.

Lettre Spirituelles de Messire Pierre Francois Lafitau, Evêque de Sisteron.—The Author, in 25 Letters to a Nun, explains the Principles of the spiritual Life, with as much Clearness as the Subject is capable of.

Le Triumvirat ; ou la Mort de Ciceron. A new Tragedy, wrote by M. Crebillon, sen. and acted at Paris with great Success.

Histoire Universelle, Sacré & Profane, composée par ordre de Mesdames de France, par M. Hardion. Vol. I.—This Work is to consist of 5 Vol. 12mo.

L'Arithmétique Universelle, ou le Calcul développé par l'Arithmétique sans le secours de l'Algèbre ni des Equations. Par M. Jousseume.—The Author assures us, that he has drawn his Principles of universal Arithmetic from Sir Isaac Newton, and promises a System of Geometry founded on the same Principles.

L'Histoire du Commerce des Colonies Angloises dans l'Amerique Septentrionale.—This Work is comprised in 1 Vol. 12mo. The Author writes with great Impartiality, and appears to be well acquainted with his Subject.

Recueil Général, Historique & Critique, de tout ce qui a été publié de plus rare sur la ville d'Herculane.

Dictionnaire des postes. Par M. Guyot. Considerations sur les Revolutions des Arts. Par M. de Mebegan.

Description Historique & Geographique des Plaines d'Heliopolis & de Memphis. Par M. de Tourmont.—This Work is printed in one Volume 12mo. and embellished with Plates.

COURSE of EXCHANGE.

London, June 24, 1755.

Amsterdam, ———	36	5
Ditto at Sight, ———	36	3
Rotterdam, ———	36	6
Antwerp, ———	no Price	
Hamburgh, ———	34	6 2½ Uf.
Paris, 1 Day's Date, —	31	
Ditto, 2 Ufance, ———	30	3 ¼
Bourdeaux Ditto, ———	30	3 ¾
Cadiz, ———	39	1 8
Madrid, ———	39	1 8
Bilboa, ———	38	1 2 ¾
Leghorn, ———	47	3 ¾
Naples, ———	no Price	
Genoua, ———	47	1 2
Venice, ———	49	5 8
Lisbon, ———	5s.	5d. ¾
Porto, ———	5s.	4d. ¾
Dublin, ———	7	¾

BILL of Mortality from May 20. to June 17.

Buried		Christened	
Males	811 ½	Males	578 ½
Females	828 ½	Females	576 ½
Under 2 years old	553	Buried,	
Between 2 and 5	172	Within the walls	113
5 and 10 ———	44	Without	368
10 and 20 ———	49	Mid. and Surry	772
20 and 30 ———	127	City & Sub. West.	386
30 and 40 ———	153		
40 and 50 ———	187		1639
50 and 60 ———	150		
60 and 70 ———	103	Weekly May 27.	392
70 and 80 ———	66	June 3.	414
80 and 90 ———	29		10. 430
90 and 100 ———	6		17. 403
100 and 109 ———	0		1639
	1639		

Observat. on the Weather, at Temple Bar.

	Baro- meter.	Therm	Pluvia- meter.	Hygro- meter.
May				
23	30 : 2	29 ¼	0 : 0	24 Dry.
24	30 : 1 ¾	28	0 : 0	7 Moist.
25	30 : 1 ¼	27	0 : 0	9 D.
26	30 : 1	28	0 : 0	10 M.
27	30 : 0	29 ¼	0 : 2	11
28	30 : 0 ½	28 ½	0 : 0	10 D.
29	30 : 1	27	0 : 0	14
30	29 : 8	29	0 : 0	28
31	29 : 6	29 ½	0 : 0	10
June				
1	29 : 8	30	0 : 2	5 M.
2	30 : 0	30 ½	0 : 0	10 D.
3	30 : 1	31 ¾	0 : 0	14
4	30 : 0	31 ¾	0 : 0	20
5	29 : 8 ½	32	0 : 1	27 M.
6	29 : 9	31 ¾	3 : 7	18
7	29 : 9 ¼	32	0 : 4	12
8	29 : 9	31	0 : 0	4 D.
9	29 : 8 ½	30 ½	3 : 4	30 M.
10	29 : 8 ¾	30 ¼	0 : 0	34
11	29 : 9 ¾	28	23 : 6	47
12	29 : 9 ½	30	0 : 4	48
13	29 : 8	30	5 : 9	49
14	29 : 8	32 ½	5 : 2	47
15	29 : 9	31 ½	18 : 1	46
16	29 : 9 ½	31 ½	0 : 0	38
17	30 : 1	31 ½	0 : 1	35
18	30 : 1	31	2 : 5	40
19	30 : 0	34	0 : 0	34
20	29 : 9 ¼	34	0 : 0	6 D.
21	30 : 0	33	0 : 0	5 M.
22	29 : 8 ½	33	0 : 0	19
23	29 : 7	31	6 : 8	11

[illegible]

Miscellaneous Correspondence,

For JULY, 1755.

A clear and succinct Account of NORTH AMERICA, Historical, Geographical, &c. continued from Page 71.

RIGHT is sometimes given by power, sometimes co-operative with, and sometimes supported by it. It is usually attained by birth, purchase, or conquest. That by birth is natural, by purchase fair, and by conquest violent. Our acquisitions in *America* have been generally of the second kind, perhaps some part of the latter. But whether all, or either of these, matters little to contesting EUROPEANS. As much as is necessary has been previously shewn, to evince our property; we are next to consider how far we are able to support it, by a fair comparison between the *French* power and our own. This is the more pertinent, as a wild notion, has gained credit, that the *French* propose to take all our Colonies, and drive the people into the sea: this thought has its existence in the brains of such who are apt to deal in the marvellous, or to raise passions that contribute but little to the peace, happiness, and welfare of the state.

From the most exact and latest account, we do not find that the total amount of the *French* inhabitants in *Canada* exceeds forty *five thousand*; and how more than one fourth of them can be supposed fighting men; or, how more than one fourth of such fighting men can be spared for distant service, I fancy will not be readily apprehended. The sum then of those who are to drive the *English* into the sea, are about *three thousand*; the *Indians* may possibly engage *one thousand* more, and such regular troops as the *French* may transport thither are to compleat the amount of their army.

What these latter may rise to is only material, if we neither send any troops, nor regiment and discipline any of the natives; but as neither seems to be the case, we are probably in that particular as well prepared as the *French*, but infinitely superior in point of natural strength in numbers, and, for reasons hereafter, much more likely to increase in proportion.

For, except *Canada*, the strength of *France* is very inconsiderable in *America*; it not appearing that, in all their settlements on the *Mississippi*, they have above *six or seven thou-*

sand inhabitants, and these at several hundred leagues distance, and what could be spared of these very difficult to joyn with the other; on the contrary, our settlements lie so connected, as whatever power we have, or can conveniently spare for the war, are easily brought together; and of what that power consists I shall now treat.

In <i>Nova Scotia</i> , besides the Military, the			
<i>English</i> inhabitants are found to be			
about	—	—	5000
<i>New Hampshire</i>	—	—	30000
<i>Massachusetts</i>	—	—	200000
<i>Rhode Island, &c.</i>	—	—	35000
<i>Connecticut</i>	—	—	80000
<i>New York</i>	—	—	90000
<i>New Jersey</i>	—	—	50000
<i>Pennsylvania</i>	—	—	250000
<i>Maryland</i>	—	—	85000
<i>Virginia</i>	—	—	90000
<i>North Carolina</i>	—	—	35000
<i>South Carolina</i>	—	—	30000
<i>Georgia</i>	—	—	6000
			986000

The above account is not a vague calculation, but is taken from such census, enumerations, and muster-rolls, as are undoubted; but as the same have been taken at different times, and none within seven years past, there is a suitable allowance made for the increase, and for which in the above account is made various deductions, so that it is *seventy thousand* less than what are esteem'd the best computations. For, as by this I only proposed to shew the folly of that prevailing notion of the *FRENCH* driving us into the sea, I conceived that the lessening of our numbers could not make the notion less ridiculous, as the excess is yet so great. And all that can be concluded from it in favour of *France* is, that *one Frenchman* is better than *twenty Englishmen*.

As to the *Indian auxiliaries*, as they respect either side, I do not any where find such an account, as may give full satisfaction to an inquisitive mind; but it seems reasonable to believe, that the *Indians* in friendship with

us are at least upon a ballance with those in alliance with the *French*, as we find that even one body of them, only, have been able, at times, to make their strongest settlements tremble. These are the *Six Nations*, and by much the strongest of our allies bordering on the northern colonies: they were said, formerly, to have consisted of *twelve thousand* fighting men, but are now reduced to about *two thousand*; however, that is more than ever the *French* were known to bring together, and they are on all hands allowed to be the bravest people in *America*.

On the borders of *Pensilvania* we find about *seven hundred*, and we do not hear of more than that number in both *Maryland* and *Virginia*; but, farther South, are the following, the *KUTAWBAHS three hundred*, *CHEROKEES three or four thousand*, the *CHIKESAWS three hundred*, and the *CREEKS one thousand*; in the whole about *seven or eight thousand*, bordering on the different parts of our inland frontiers, and who contribute essentially to their protection, and it is thought would be of more eminent service were they managed with skill. Hence it appears, that we do not want means of defence, or indeed of offence; which however shall be farther illustrated by the following comparative summary, whereby is proposed to deliver all that is farther necessary to be known in respect to *America*.

HUDSON'S BAY, the most northern settlements of the *English*, is, by the investments of a charter, dated 2d May 1670, extended between $50^{\circ} 30'$, and $64^{\circ} 00'$ north latitude, and between 55° and 90° of longitude; but the limits adjusted by the treaty of *Utrecht* are best seen by inspection of the map, noted therein, and marked off by a prickt line, and carried about 40 minutes to the southward in latitude, and about seven degrees of longitude more westward than the bounds of the charter.

The *ENGLISH* have not within these limits any towns, colonies, or settlements of families, but only forts, and within them store-houses for carrying on trade with the *Indians*; for *WOMEN* are prohibited here by the company; so that the strength of the *English* on this side consists entirely in the respective forts of no great consideration, and the number of residents the company send here and employ in trade. What therefore is necessary to be known of this country is, the situation of their forts, and the nature and advantage of their traffic.

The northernmost of these forts is at *Churchill*, in the latitude of 59° . The river is navigable up about 150 leagues, and then passing the Falls, considerably farther: this place has an improving trade, the track of the *In-*

dians thither being entirely out of the *French* rout; and to the northward of this, there is not any *BEVER*, but there are *Martins*, *Ermine*, &c. All the forts are seated on rivers, for the convenience of the *Indians* coming down to them on rafts, or in canoes.

The next is called *York fort*, seated on an island in about the latitude of $66^{\circ} 30'$ at the out-falls of *Nelson's* and *Hay's rivers*: the country about this fort is very low and marshy, and pretty well replenish'd with woods, tho' the trees are but of small growth; the value of the traffic here may be in some measure guessed at, if the report be true, that about one thousand *Indians* come down this river to the fort in canoes, and bring with them the following commodities: *Bustard* and wild-geese feathers, white fox and *martin* Zemblin skins, fairer than those of *Russia*, squirrel, cat, ermin, bever, elk, stag and bear-skins; those *Indians* nearer the coast kill seal, the oil of which is clearer and better than nut-oil, and bring it to the factory.

The *Company's* factories are all on the south and west side of the Bay, except that at *Rupert's river*, which is on the S. east. *Albany* is in about the latitude of 52° , and the country about is well wooded, watered, and capable of producing various kind of grain, roots, &c.

Rupert river factory is in about the latitude of 51° , and being the southernmost, is consequently best supplied with roots, herbage, &c. At *Albany* and *Rupert*, besides some of the commodities mentioned above, the *Indians* trade with them for train-oil and whale fin; so that, considering all things together, it should seem that our fur-trade on this side, with the feathers, skins, oils and fins, is on a parity with *New France*, and still less likely to be interrupted; but is not like that in any respect calculated for improving of numbers; nor indeed can one easily perceive how they should live here, in a climate, tho' equal in latitude to different parts of *Great Britain*, yet is the weather feverer much in the most southern parts of *Hudson's Bay*, than in the most northern of *GREAT BRITAIN*, and much more steril and barren.

There are not on this continent any other *European* settlements between these and those of the *French* in *Canada*; and it is therefore of that country we are next to speak.

Canada, or *New France*, being at present on the footing of contested bounds, I shall not limit it by a general geography, but only regard its populousness, power, and trade.

The towns and settlements of any consequence in this country are seated on the great river *St. Laurence*, and *Quebec* is esteemed the capital; the mouth of the river is in about the latitude of 49° , and *Quebec* in about 47°

30': it is seated on the north side, about six hundred miles south-west of the river's mouth, including the windings: it consists of two towns, the upper and the lower, both regularly fortified, and commanded by a fort, constructed on an adjacent eminence; and both towns together are about three miles in circumference: it is a *bishopric*, and here resides the *captain-general* of all *Canada* and *Louisiana*; its inhabitants are variously computed from 10 to 15000, and the usual garrison about 500 men.

Trois Rivières is higher up the river, about a degree of latitude to the southward of *Quebec*, and about the midway between that and *Montreal*: it has its name from being seated on the confluence of *three rivers*, like our *Carlisle*; one of the rivers is called *St. Laurence*, the others I do not find any name for. This town is small and slightly fortified, containing only 3 or 400 families; but is well built, and a considerable mart for the interchange of *Indian* and *European* commodities.

Montreal is about 70 miles higher up the river, and is about a degree and a half to the southward of *Quebec*; it is seated on an island, about fourteen leagues in length, and five in breadth, replete with well cultivated plantations, and the town sufficiently well fortified against anything but a regular siege: it is suppos'd now to contain about two thirds the number of inhabitants as *QUEBEC*; but then it follows, that either *Quebec* is over computed, or that *Montreal* is vastly improved since 1688, when the *Iroquois*, in open day, and not by surprise, entered this island and burnt and destroy'd all the plantations round the town, without meeting with any material resistance.

These are all the towns of any kind of note that the *French* possess in this part of *America*; for of *New Orleans* I shall speak in its proper place; and I can not find their villages are many and populous; so that the computation of 45000 *French* in this country is an ample allowance, and most probably too many.

Above *Montreal* the river *St. Laurence* is not navigable, owing to various *cataraets*, or *water-falls*, and in consequence very swift streams. The whole course of the navigation downwards is very dangerous and difficult, being full of rocks, islands, and shoals, and subject to thick fogs; and when clear of them to tempestuous weather; all of which are very great obstructions to navigation in so narrow a channel, especially for ships of any force or magnitude.

Besides, the climate is so cold, that the river is usually frozen up from *October* to *May*, and the earth is so long covered with the snow, that the inhabitants find it very difficult to maintain any considerable number of cattle through the winter,

The *Indian* trade is the main business of this country, and takes off so many of their labourers, that they often fall short of grain for their annual subsistence.

The *FRENCH*, being naturally *slaves*, easily become *savages*, marry, and live amongst them, as freer than their domestic state; but this, however it takes off from agriculture, tends considerably to the improvement of their trade. These fellows are called *coureurs de bois*, and live on a parity with the *wild Indians*. They do not by this forget their country, but tasting the benefit of a better acquisition than they could make by labour at home, are very adroit in managing the *Indian* traffic at once to their own advantage, and to that of their country.

To support these and the *Indians* in alliance, and to cut off as much as possible a trade with our colonies, they have constructed various forts, that make a kind of chain from *Montreal* to *New Orleans*.

A little below *Montreal*, where the *Iroquois* river enters *St. Laurence's*, is *fort Sorel*, and the midway between that and *lake Champlain* is *fort Chambli*, and about 100 miles north by east of *Crown-point*. On *lake Ontario*, about 60 miles north of ours, at *Orweys*, is *fort Frontinac*; one other they call *Denouville* at *Niagara*, and another on the canal of communication between the *Huron's* and *Erry lake*, besides those capital forts at *Crown-point* and on the *Ohio*, and a great number of *stockados* to complete the chain.

In the principal of these, as in the towns, garrisons are maintained at the king's expense, which at once adds strength to the colonies, and circulates a good deal of running cash, which gives vigour and spirit to their trade. But after all, there seems more of whim than probability of success in completing this national chain, that wants several millions of people to make it appear of any other consequence than sometimes interrupting our interchange of commerce with the distant *Indians*; and it seems almost as ridiculous, that the *English*, having such a vast superiority, should suffer this chain to have any links subsisting, upon which I do not chuse at present to make a very natural reflection.

The distance between *QUEBEC* and *New Orleans* is at least 700 leagues, the way they are oblig'd to travel; it is a journey by the lakes of three months from *Canada*, and three times as much back, the stream being against them; and the distance by sea, if that was any thing to the purpose, near a thousand leagues. How weak and ill supported then must this chain be, and in consequence, how easily broke and destroyed by very moderate numbers! It therefore seems to me better to

destroy these than build any our selves, as numbers cannot want *forts*; tho', where numbers are not, *forts* may be requisite; however, it seems to me, that if we cannot beat them out of their *forts*, there is no reason to expect that we shall be able to maintain any we may build.

Acadia, or *Nova Scotia* is bounded on the north by the gulph and river of St. *Laurence*, on the east partly by the said gulph, which divides it from *Newfoundland*, and partly by the *Atlantic* ocean; on the south by the great opening of the *Bay of Fundy*, and on the west by part of the said *Bay*, and by a continent of unknown western extent, and is from north to south, from the entrance of the river St. *Laurence* in the latitude of 50, to *cape Sable* in the lat. 43, eight degrees, or 552 miles of 69 to a degree. The principal settlements in this country are *Anapolis royal* and *Hallifax*, and the *English* inhabitants are now computed at 5 or 6000, the *French* subjects of the crown of *England* at about 15000, but not to be depended upon, in respect to our valuation of the strength of the country. *Anapolis* is a tolerable fortification, seated on the upper part of a fine harbour in the *Bay of Fundy*, and in about the lat. of 44; and is the only regular plan'd town in the *British* dominions, except *Philadelphia*, and the reason of both is, that they were built on a form'd plan; this has four streets each way on the square, crossing each other at right angles; the houses are tolerably built, and the number of inhabitants, including the garri-son, about 4500. It is fortify'd by a single line and five regular bastions, and the harbour is one of the finest in the world. Over the *Isthmus* a communication is gradually forming between this town and *Anapolis Royal*, which, when compleated, will cover a large extent of country to the southward. *Hallifax* is finely situated for commanding the east coast fishery, formerly carried on from *Causeaux*. The ship-timber here is of quicker growth than in *Canada*, and in great plenty; and altho', considering the latitude, the winters are very severe, yet is the soil capable of producing most of the grains, roots and herbage, common to *Great Britain*: and as the people increase and flourish, a trade will naturally ensue, and thence encouraging more people to come over, this settlement may in a moderate course of time be alone a match for *Canada* on this side, as *New England* is on the other; it being reasonable to think, that this colony will grow

faster than *Canada*, as being a much better climate.

I shall for the present pass by the respective islands of *Cape Breton*, *Newfoundland*, &c. as not material to the point in view, and as breaking into the connection of our power and interest on the continent.

New England, generally so called, and the next in order, is divided into four provinces, the *Massachusetts*, *Hampshire*, *Connecticut* and *Rhode island*: Taking the four provinces together, they are seated between the lat. 41 and 45, and 67 and 73 west longitude, bounded on the N. west by *Canada*, on the N. east by the *Bay of Fundy* and *Nova Scotia*, on the east and south by the *Atlantic* ocean, and on the west by *New York*, extending in length about 300 miles, and in breadth in some parts about 200 miles.

The whole province of *New Hampshire*, included in one county, is to the northward of the *Massachusetts*, but has the province of *Main*, part of the *Massachusetts*, between it and *Nova Scotia*. It is, as I take it, within the boundaries of this province that the *fort* so much talk'd of, at *Crown-point*, is constructed by the *French*, as you see it in the map. on the point of lake *Champlain*, which seems to receive its waters from the river St. *Laurence*, by a stream from *Trois Rivieres* extending thereto, but on the contrary, is one of the streams that feeds St. *Laurence*, and has its source in that lake, in the opening between which and the higher stream of St. *Laurence*, and so down to the lake *Erric* on the back of *New England*, *New York*, and *Pensilvania*, is the country of the *Iroquois*.

In 1742, an account was taken, and the whole inhabitants of this province found to be twenty-six thousand, and computed by the increase since to be now about 30000.

The *Massachusetts* are divided into eleven counties, and those again into one hundred fifty-three townships; these townships are not known by a contiguity of houses, but by a measure of four, five, or six miles square, wherein the inhabitants are pretty much scattered: *Boston*, the capital, is, however, a large, compact and well built town; it contained in 1742, 1719 dwelling houses, 166 warehouses, 16382 white people, and 1514 *Negroes*; and in the whole colony, about 200000 souls.

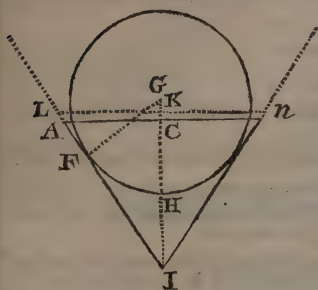
Rhode island, including *Providence* plantations, is divided into four counties, which comprize 24 townships. By an exact account taken in 1748, there were in this colony 28439 *Whites*, 3077 *Negroes*, and 1257 *Indians*, and the increase since may be to the amount of 35000, the utmost that can well be supposed.

[To be concluded in our next.]

MATHEMATICAL QUESTIONS Answered.

Having received the following Answers to Question 9. since the Publication of our last No. we place them here.

Question 9, answered by T. J.



LET the Semidiameter of the Ball $GF = x$, the Height of the Segment immerfed $KH = y$, the Height of the Liquor by the Immerfion of the Ball $= KI = d$, let $AC : AI (:: 2 : 3,6055) :: c : b$, then, per Sim. $\Delta s c : b : x : \frac{bx}{c} = IG$, and $\frac{bx}{c} = d = GK$, and $x + d - \frac{bx}{c} = y = KH$, hence $x = \frac{d - y}{\frac{b}{c} - 1}$, let $x =$, 7854 and by a common Theo-

rem $\frac{4}{3} \times \sqrt[3]{3xyy - y^3} =$ Solidity Seg. immerfed,

and for x writing its Value found, we have $\frac{4}{3} \times \sqrt[3]{\frac{3dyy - 2y^3 - \frac{b}{c}y^3}{\frac{b}{c} - 1}} =$ Seg. Solidi-

ty; in Flux. $6dy\dot{y} - 6yy\dot{y} - \frac{3b}{c}yy\dot{y} = 0$ hence the Segment's Solidity $= \frac{4}{3} \times$

$\sqrt[3]{\frac{4c^3bd^3 + 8c^4d^3}{b - c \times b + 2c^3}}$. Let $CI = 3. = n$, then $n : c :: d : \frac{cd}{n} = KL$, hence the Contents

of the Glaſs up to that Place $= \frac{4}{3} \times \sqrt[3]{\frac{cc d^3}{nn}}$, and $\frac{1}{4}$ the Content of the whole Glaſs $=$

$\frac{ccc n}{3}$, then per Queſt. $\frac{4}{3} \times \sqrt[3]{\frac{4c^3bd^3 + 8c^4d^3}{b - c \times b + 2c^3}} + \frac{ccc n}{3} = \frac{4}{3} \times \sqrt[3]{\frac{cc d^3}{nn}}$ this Equation

reduced $\frac{4}{nn} - \frac{16c}{b - c} \times \sqrt[3]{\frac{cc d^3}{nn}} \times d^3 = m$, hence $d = 3,1084 = KI$ the perpendicular Aſcent of the Liquor; (if the Sides of the Glaſs were continued high enough;) and

$x = \frac{\frac{d - y}{\frac{b}{c} - 1}}{\frac{b}{c} - 1} = 1,8356 =$ the Semidiameter of the Ball required.

Z. LEKSAG's Solution.

PUT $y = FG$ the Rad. of the Ball, $yx = KH$ the Height of the immerfed Segment, $c = 3.1416$. Then by a well known Theorem, the Solidity of the ſaid Segment will be $= \frac{bcy^3x^2 - 2cy^3x^3}{b}$ This $+ c$ (c by the Data being $=$ to the Quantity of Li-

quor) will be equal to the Solidity ILn . Next, by ſimilar Triangle, As $2 : 3 :: y :$

$\frac{3y}{2} = FI$, per 47 Euc. I. $\sqrt{\frac{9yy}{4} + yy} = 1.80277563y = GI \cdot \cdot 0.80277563y = HI$.

Then is $.80277563y + yx (= ay + xy) = KI$ which is to be a Maximum. Again,

As $3 : 2 :: ay + xy : ay + xy \times \frac{2}{3} = LK$. $LK^2 \times c \times \frac{1}{3} KI = ay + xy^2 \times \frac{4c}{9} \times \frac{1}{3} \times$

$\times \frac{1}{3} \times ay + xy = \frac{4c}{27} \times ay + xy^3$ is likewise equal to the Solidity $ILn = \frac{6cy^3x^2 - 2cy^3x^3}{6}$ + c. This Equation divided by cy^3 , and ordered, results $y = \frac{3}{4a^3 + 12a^2x + 13x^3 - dx^2}^{\frac{1}{3}}$

(where d is $= 27 - 12a$) which put for y in $(ay + xy)$ the Maximum,

we have $\frac{3a + 3x}{4a^3 + 12a^2x + 13x^3 - dx^2}^{\frac{1}{3}} = \text{a Maximum.}$

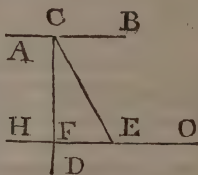
Then will $\frac{a+x}{4a^3 + 12a^2x + 13x^3 - dx^2}$ be likewise a Maximum. This fluxed and reduced gives $x = \frac{24aa + 2ad}{39a + d} = .890599607$, whence y , the Radius of the Ball, is $= 1.8356467$, its Diam. 3.6712934 , and the perpendicular Height of the Liquor $= 3.1084386$. Therefore the Cone must be continued to Ln (the Quantity of Liquor c remaining the same) to contain it, for in the present Case (by the Data) 'twill run over.

Remark. These Solutions differ from Mr. Dyer's, p. 75, 76. he supposing the greatest Quantity of Water raised to be the Maximum; whereas the Question required it to be the greatest Height.

Mr. Bamfield also solved this Question.

Question 13, answered by Mr. JOHN SHIPMAN.

LET AB represent the axletree parallel to the horizontal plane HO , CD a spoke perpendicular to AB and HO ; and let CE ($= CD$) incline to HO ; then, if the length of the spoke be $= 1$, by mechanics, $FE = \frac{1}{2}$, because the stress upon the spokes is as the co-sine of their elevation above the horizon. Whence $1 : \text{rad.} :: \frac{1}{2} : .05 = \text{nat. sine of } 2^\circ 51' 6'' = \angle DCE$ required.



Mr. JOHN WOOD's Answer.

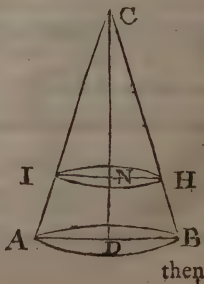


LET $1 = \text{Strength of the Spoke } SP$ when perpendicular to the Horizon, and its Strength when declining from that Position will be diminished in the Ratio of the Co-sine ($S \odot$) of the Angle of Inclination. Per Quest. $S \odot = \frac{1}{20} = .05 = \text{Nat. Sine of } 2^\circ 52' \text{ the Angle required.}$

Question 14, answered by Mr. JO. LIDDELL of Hull.

LET $AD = x$, then $AB = \frac{5}{8}x$, $n = .7854$, then the solidity will be $\frac{25nx^3}{192} = 11.358333$, &c. by

the quest. Solved $x = \sqrt[3]{\frac{2180.8 \dots}{25n}} = 4.8 = \text{altitude, from which the diameter of the base} = 3$, then (per 47. *Euc.* 1.) $AB = 5.03$ slant height, and $\frac{5}{8}$ convex surface $= 16.6700619$, whence for the two parts CH and BH , let $CH = y$, radius $BD = 1.5 = \frac{AB}{a}$,



then *per* similar triangles $5.03 : 1.5 :: y : \frac{1.5y}{5.03} = NH$, also let $p = 3.14159$,
hence $\frac{1.5 p y^2}{5.03} = \frac{5}{8}$ convex surface of CIH. Solved $y = 4$. nearly $= CH$,
from which $HB = 1.03$

The same, answered by Mr. JOHN SHIPMAN.

PUT $\frac{1363 \text{ pence}}{120 \text{ pence}} =$ content of the whole cone $= c$, $x = CD$; then *per*
question, $\frac{5x}{8} = AB$; whence $\left(\frac{5x}{8}\right)^2 \times \frac{x}{3} \times .7854 = c$, and $x = 4 \sqrt[3]{\frac{3c}{25 \times .7854}}$
 $= 4.807 = CD$, consequently $\frac{5x}{8} = 3.004 = AB$, $AC = BC = \sqrt{BD^2 + DC^2}^{\frac{1}{2}}$
 $= 5.0339 = d$, and the connex surface of the whole cone $= \frac{5 d x}{16} \times 3.1416$
 $= 23.75634$, which call 1, and put $y = CH = CI$. Then, by the nature
of similar figures, $d^2 : 1 :: y^2 : \frac{s y^2}{d^2} =$ the convex surface of the cone CIH,
and that of the segment ABHI $= 1 - \frac{s y^2}{d^2}$; but *per* question, $8 : 5 :: \frac{s y^2}{d^2}$
 $: 1 - \frac{s y^2}{d^2}$, $\therefore \frac{5 s y^2}{d^2} = 8s - \frac{8 s y^2}{d^2}$, hence $y = d \sqrt{\frac{8}{13}} = 3.95$, and BH
 $= AI = 1.07$.

New QUESTIONS to be answered.

Question 34. *By Mr. J. CARTER.*

THE least Diameter of the Frustum of a
Cone is $= x$, its bottom Diameter $= 2x$,
and Height $= 3x$; and the Solidity $= x^3$.
Quære the Dimensions?

Question 35.

By Mr. WILLIAM BEVIL.

IF $p =$ any Sum of Money given, be put
to compound Interest at 5 ($= r$) *per*
Cent. *per Annum*; in what Time will the last
Year's Interest become equal to the Prin-
cipal?

Question 36. *By L. B.*

IF the Length of the Board which throws
off the Furrow in a Plough be 28 Inches,
required its Position, in Respect of the Head
thereof, so as that it may cast off the Fur-
row with the most Ease?

Question 37.

By PHILALETHERS of Biddeford.

ANY Number, as for Example 5781, may
be divided by 9, after the following
Manner. In the Operation below, the Row
of Units, or Figures on the Right-hand of
the Line, are added up by 9, and the other
Columns by Tens; then the Sum on the
Left-hand of the Vertical is the Quotient,
and the Figure on the Right-hand of it, the
Remainder. It is required to give the Rea-
son, Investigation, or Demonstration of this
Method?

The Operation.

The Dividend is	5781	1
Omitting the 1 we have	57	8
Carrying away the 8 tis	5	7
And throwing away the 7 tis	5	5
	642	3 remaining.

Question

Question 38.

By Mr. GEORGE MURRANT.

ON the 10th of June 1755, in Lat. $54^{\circ} 36'$ N. my Cane standing upright on an horizontal Plane, did cast a Shadow 64 Inches

long, but slipping thro' my Fingers, and falling towards the said Shadow, the Shadow was 54 Inches long when the Cane made an Angle of 30° with the Horizon. Required the Hour of the Day, and Length of the Staff?

AS we shall make it our Business, through the Course of this Work, to point out all the singular and extraordinary Productions of Nature in the *Animal*, *Vegetable*, and *Fossil* Kingdoms; so we shall take an Opportunity, very often, of presenting our Readers with their proper *Icons*, or Representations in Copper-Plates, that they may have a more lively Idea of the same. Accordingly, we have here given a microscopical View of the most curious Insect of the *Phælaena* Kind, viz. of the *small, white-plumed, or feather'd Moth*; which, we doubt not, will be deemed a Curiosity by others as well as ourselves, as it is an anomalous Species, and is in itself of a beautiful Form, and of a Colour, the *whitest* in Nature: They are found in great Plenty in the Evenings in *May* and *June*, in many Parts of *England*, but particularly in *Hampshire*. The Wings of other Moths are *membranous*; but of this, they consist of fine distinct and most elegant FEATHERS! We have already taken Notice of it in the *Theology of Insects*, and shall have Occasion-hereafter to be more particular in its Description.

A Description of a MACHINE for a perpetual/ELECTRIFICATION.

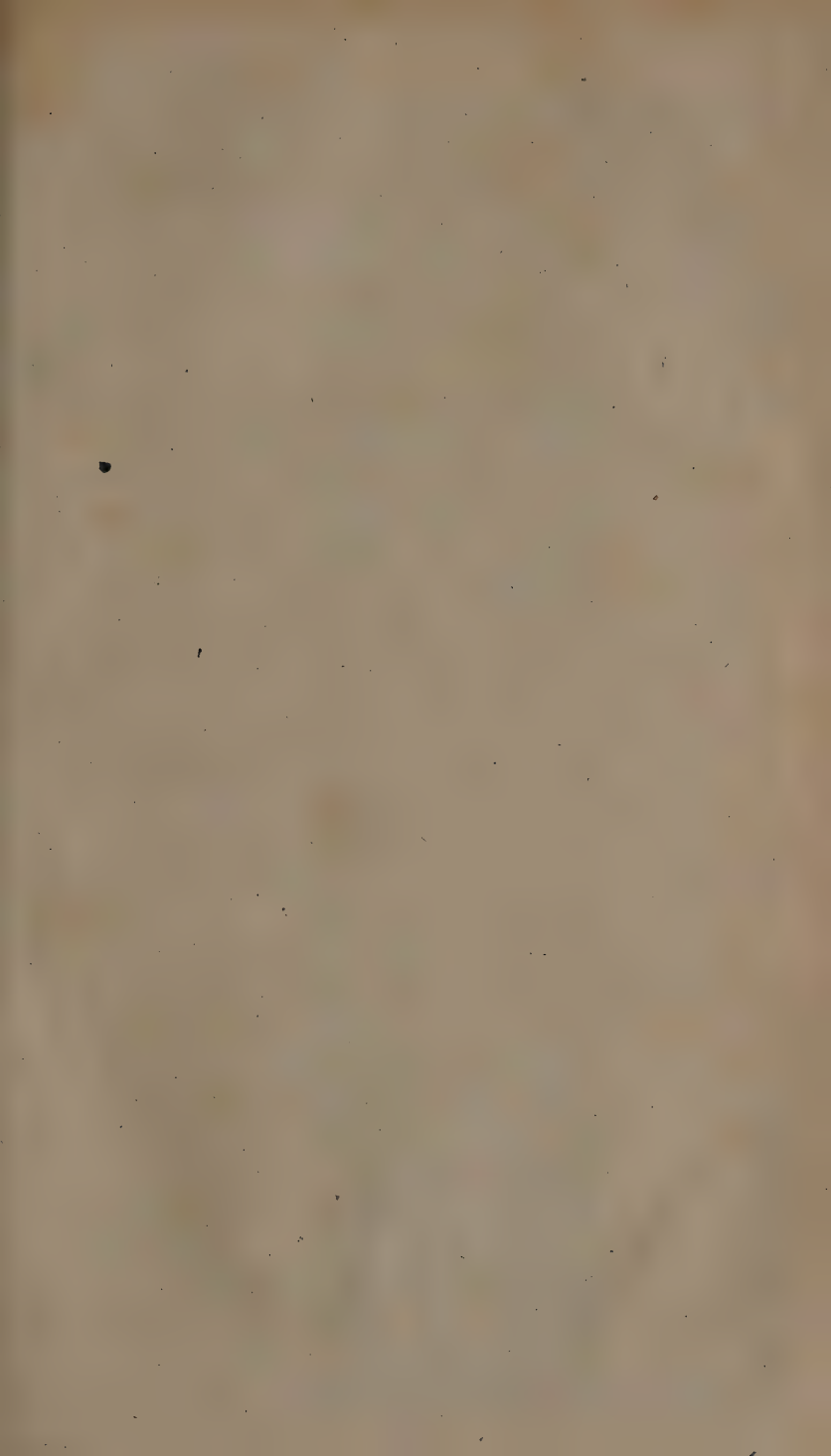
AS it is our profess'd Design to improve every Discovery for the Public Good, as far as we are able; and as *Electricity* is now well known to be somewhat more than a Matter of mere Curiosity, inasmuch as it has been successfully applied to the Cure of several Disorders of the *rheumatic* and *paralytic* Kind, and to remove Obstructions and Pains occasioned thereby; also it is well known greatly to promote *Vegetation* in *Plants*; and doubtless might be found of Use in many other Cases, if it were applied in a proper Manner, I mean so that it might be rendered *constant* or *perpetual*, and not *momentary* and *instantaneous*, as in the common Way of using it. For, if such surprizing Effects be producible by its suddain, and, as it were, single Action, what may we expect from the continual Action or Influence of such a powerful Agent; that is to say, from a perpetual Electrification of animal and vegetable Bodies?

In order to assist in such an Undertaking,

we here propose a MACHINE, which we think will be sufficient for an Experiment of this Kind. It is the Application of the *Hydraulic Machine*, invented many Years ago, by Dr. Barker; with a proper Apparatus for perpetually electrifying the Plants and Fruit Trees of an artificial Garden. The Description of which is as follows.

- a, b, is the upright Tube or Body of the Machine, 8, 10, or 12 Feet in Height.
- c, d, the horizontal Trunk, thro' which the Water spouts from Holes at each End, but on contrary Sides.
- e, e, A large open cylindrical Part on the Top of the Machine, to receive the Water from.
- f, f, A Trough, which brings a small Stream of Water from some adjacent Spring, &c. which turns the Machine.
- g, b, Two Glass Globes, turn'd by the Machine by means of a Cord from the Groove in the outer Part of the Receiver e, e, and moving in Grooves of lesser Wheels fix'd on the Axles of the Globes.
- i, i, Two Screws, by which the Cushions are press'd against the Globes for greater or lesser Degrees of Friction.
- k, k, Two iron Arms fixed in the Frame of the Machine, and projecting beyond the Globes, suspend, on silken Strings, a long Rod of Iron, in Form of T, whose Part
- l, l, receiving the Electricity from the Globes, conduct it to
- m, n, o, A slight Frame of Wood in the Front.
- p, q, r, s, The Electrical Garden, placed on
- t, t, t, &c. small Pedestals, or Pillars of Wax and Resin.

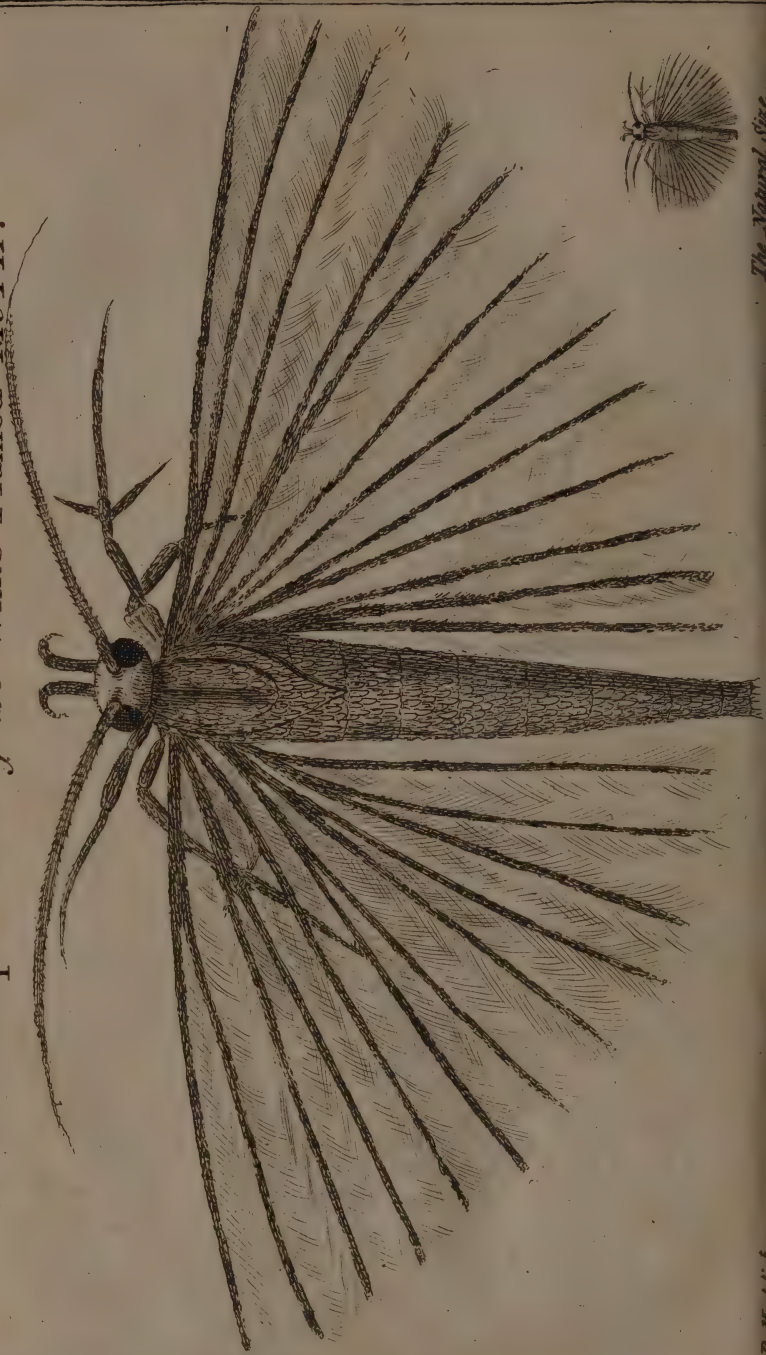
In this Garden may be placed in Pots any Sorts of Plants, Flowers, &c. which, when the Machine is in Motion, may be constantly electrify'd. One Globe is enough to be in Motion at a Time; and when that is too hot, the other may be put into Motion; and so they may be alternatively used Night and Day, without Cessation of the *Electrical Effluvia* on the Plants. As a constant Stream of Water may in most Places be had, and as the Expence of such a Machine and Garden would not be very great, it is much



A MACHINE for a Perpetual Electrified GARDEN.



A Microscopic VIEW of the White Plumed MOTH.



to be wish'd, that those who have it easily in their Power, would oblige Mankind with some Attempt of this Nature, that they might be satisfied what could be effected in *Medicine* or *Physics*, by a perpetual *Electrification*.

N. B. Eight or ten Feet Fall of Water will be more than sufficient for this Purpose, and the Diameter of the Tube, *a, b*, five or six Inches at most.

On the *Absence* and *Return* of a Friend.

IF there's a joy on earth, 'tis friendship's flame,

Where friendship is inviolate and true ;
To love itself it bears superiour claim,
And to it's shrine more sacred truth is due.

If honest friendship so delights the heart,
If 'tis such joy a faithful friend to gain,
Or *death*, or *absence*, when they call to part,
Must torture with proportionable pain.

From *absence*, *hope* will give the mind relief,
And reason teach us what we ought to bear ;

But *death* in *friendship*, is the *life* of *grief*,
Hope then is dead, and all is deep *despair*.

If separation gives such pain,
Does so our peace destroy ;
From absence, the return again
Gives heart-exulting joy.

That joy be mine, ye muses, hear,
The gladsome song inspire,
And teach a heart that is sincere
To sing its sacred fire.

Let discontent no longer know
The gloom of solitary woe ;
But spritely wit, and mirthful song,
Hither come, oh ! come along :
Hither come, and bring with thee,
Open-tongued *sincerity*,
Faithful friendship, honest truth,
Jolly age, and gaysome youth ;
Hither come, and join to prove
All the joys of social love.

Let *pleasure* spread her rosy wing,
Let *harmony*, attendant, sing ;
And let, of *truth*, the torches burn,
To celebrate a *friend's* return.

In high-wav'd tides let transport roll,
And animate the drooping soul ;
Whilst meekness and benevolence,
Soft pity, and engaging sense,
And every wish, and every joy
That never sicken, never cloy,
To friendship wing their top-moſt flight,
Diffusive as the clouds of night.

'Tis done, I feel, I feel the fire
That only *virtue* can inspire :
This is the joy that *friendship* knows ;
That is the *fountain* whence it flows.

A SONG.

WOULD all the pow'rs attentive be
To hear their vot'ry's pray'r,
And grant a blessing unto me
To banish all despair ;
In toying sweet I'd spend the day,
Where artless shepherds rove,
And linnets, perch'd on ev'ry spray,
Invoke my *Daphne's* love.

For love shou'd bear the sov'reign sway,
It's fire posses each breast,
While we in woodbine bow'rs play,
And live completely blest.
In pleasure thus, the roving bee,
That ev'ry flower sips,
Shall wanton round, and envy me
The sweets of *Daphne's* lips.

We'd taste the dewy sweets of morn,
Joy should each bosom fire,
And mirth my *Daphne's* face adorn,
And love her mind inspire :
Whilst Nature thus is pleas'd to see
The Graces all unite,
The birds shall chirp, on ev'ry tree,
My *Daphne* to delight.

DAMON.

YOUNG *Damon*, once the happiest swain
That ever pip'd on verdant plain,
Or sung a roundelay ;
All jocund youth to mirth inclin'd,
The rustic dance he always join'd
To hail the flow'ry *May*.

'Till love had reach'd the shepherd's heart ;
Corinna threw the fatal dart,
Then griev'd the wound she made :
No more he flies to rural sports,
Nor with the mirthful train resorts,
He seeks the gloomy shade.

'Twas there, oppress'd with heavy Grief,
Ye Gods, he cry'd, or send relief,
Or bid th' unpy'd die !
Still must I live and love the maid !
Ah, cruel fate ! — No more he said,
But fainting heav'd a sigh !

As oft the shepherd walk'd the wood,
So oft *Corinna* list'ning stood,
To hear and mock his pain :
But ne'er, 'till now, a tear o'erflow'd,
Or one kind pitying look bestow'd,
On the unhappy swain.

Now, pierc'd with agony, she flies,
And *Damon, Damon, Damon*, cries,
Thy tender heart I broke!
And can'st thou speak? — Ah, no, he's dead!
Then wrings her hands — and now they're
spread,

The whilst these words she spoke :

“ Oh ! *Damon*, tho' I once refus'd
To hear the softest words you us'd,
That might to pity move ;

Had you the power to know it now,
I'd kneel and make a solemn vow
No other swain to love.”

Thus spoke the fair, and *Damon* found
In ev'ry word a joyful sound,
That bid his fears abate.

A while he gaz'd, then in his Arms
Receiv'd the maid, with all her charms,
And blest'd the change of fate.

M. P.

ANGELIC FAIR. A SONG.

By W. SWIFT, of Stow, Lincolnshire.

An-gel-lic fair be-neath this pine, in
graf-fy verdure lets re-cline, and like the
morn be gay: See how Au-oro-ra smiles on
spring, see how the larks A-rise and sing
to ha-ill the in-fant day.

Resume the sweetness of thy tongue,
Which has now charm'd my ear so long,
With Accents half divine ;

My pipe shall swell its liquid strain,
And sink it's rising Notes again,
In Unison with thine.

Music

Musick shall waste the morn, the day
Will roll, unheeded (as we play)
On Wheels impell'd by love ;
When weary, we will deign to rest
Alternate on each other's breast.
While Cupid guards the grove.

What prince can boast more happiness,
Than I, possessing thee, profess
All toils are banish'd hence ?
Say, mortals, who our weeds despise,
In what superior pleasure lies,
To love and innocence ?

A PETITION to PROVIDENCE.

(By a LADY.)

WOULD Providence, with kindness hear
my prayer,
And destin me of happiness a share,
(Since but a share, alas ! was e'er design'd,
To bless on earth the best of humankind :)
Let me, as health must my foundation be,
Possess an easy ample stock of thee.

Next, as ambition never rack'd my brain ;
(A thing that must by all be found most vain)
Let all my humble hopes be justly bent,
Nor let me e'er aspire beyond content.
Low if my lot should be, content will please,
When prosperous affluence is void of ease.

Strait thro' thy paths, O virtue ! lead my
mind,

Regardless of the thorns I there may find :
Sweet are the roses thou ordain'st to blow,
And thorns, with roses, must for ever grow.
Teach thy great pupil thought, the mighty art,
To charm, instruct, but not to pain the heart :
Say, reason, can that contradiction be,
When thought and memory so well agree ?
Will not life's woes, and wrongs, disturb the
scene ?

No ; even those can virtue make serene.
Wrap'd in itself, all foreign ills endure :
Or only sigh, and wish for power to cure.

Nature's wide works should dignify my soul,
And years, like hours of happiness, should roll ;
Nor should one hour hang heavy on my hand,
To be at any but a friend's command :
If, Providence, thou wilt allow me this,
To crown the ultimate of all my bliss :
Scarce to be found, indeed, and to our cost,
But seldom truly known, 'till ever lost :
Yet let me hope to find some faithful serv,
Whose converse shall the taste of life renew.

Bless me with years, for my dear infants sake,
And may they long of every good partake :
While, with a pleasing pain, I daily trace
The father's features, in each smiling face !
But, if too short a span for me's design'd,
O, gracious Providence, to them be kind !
Thy all-sufficient hand can point their way,
And may their virtue teach 'em to obey.

Grant me possession of some happy cell,
Where I, unenvy'd, may in quiet dwell !
There rural pleasures should my mind regale,
And innocence, in various shapes prevail.
My books and pen must claim the foremost seat :
For only they can make retirement sweet.
Life's trifling troubles they can render calm,
And find for every wound some healing balm.
Nor would I wish too much for fortune's toys,
But they are needful, and would bless my boys.
Would bless lov'd friends, who droop in for-
tune's shade,
And bring life's prosperous sunshine to their
aid :

For, undeserving must that mortal be,
Who can unpain'd the pains of others see.
Small is the wish that might for one delight,
But let me see, with more expansive sight :
Taught by too harsh a master, stern distress,
I now can limit hope to happiness.

They whom experience teaches to be wise,
Will thro' content the greatest fall despise ;
And think 'tis scarcely worth their wish to
rise.

But if, O Providence ! thou e'er should'st deign
To suffer me this humble suit to gain ;
May I, of power to wish'd, be dispossest,
Whene'er humanity forsakes my breast.
First, and unceasing, let me ever raise,
Reflection's power, to sing it's Maker's praise !
Studious for ever in that fruitful field,
Imagination shall enlargement yield :
On to the grave's dark verge admiring stray,
'Till death's long night concludes the tiresome
day.

Propt on strong hope and faith, here thought
grows blind,
Sickens thro' doubly, et leaves despair be-
hind.

On the IMMORTALITY of the SOUL.

IF we with brutes must share a common
fate,

Nor quit this earthly, for a better state,
If cruel death destroys the thinking part,
And strikes the spirit, as it strikes the heart,
Say, to what purpose was our reason given,
Reason, the greatest, noblest gift of heaven ?
Say, who would ever be upon their guard
'Gainst vice, if virtue meets with no reward ?
Much happier does the libertine appear,
Who drinks of pleasure's cup without a fear ;
His days are joyous, every scene is gay,
And in amusements pass his time away,
'Till the last period of his life is come,
And death conducts him to the silent tomb.
Turn from this picture of earth's happy man
And let us that of Virtue's votaries scan,
See merit oft expos'd to envious hate,
The frowns of fortune, and the storms of
fate ;

See the good man by dire misfortune led,
Subservient to the wealthy fool for bread;
There often doom'd to hear what gives of-
fence

To truth, morality, and common sense,
'Till worn with sorrow, and by grief oppress'd,
The weary soul sighs for its promis'd rest,
And, like the hireling, working for his pay,
Welcomes the evening of a toilsome day:
If this be true, what greater proof can rise,
That virtue blooms but in her native skies;
The charming plant here nurs'd with tender
care,

By death transplanted, yields its produce
there:

This thought alone can the good man sustain,
And give him ease in poverty and pain.

Who will not calmly bear stern fortune's
frown,

That knows he soon shall gain a heavenly
crown?

Who does on sublunary bliss depend,
That hopes a happiness which ne'er shall
end?

Have courage then ye meritorious few,
Whom strong temptations labour to subdue,
Fight the good fight, and with life's latest
breath

Prove glorious victors over sin and death.

M. Dawson.

DELIA.

ON *Delia's* bosom — *Delia* fairest maid
That fickle taste e'er yet acknowledg'd
fair —

Th' enamour'd *Thyrsis* gently lean'd his
head;

There breath'd his vows, and told his
ev'ry care.

An artless Mind, and ev'ry manly grace,
Good sense, good nature, form'd the
lovely swain;

Sweet innocence beam'd cheerful in her
face,

Her open look unskill'd, untaught to feign.

Long had their breasts indulg'd a fond de-
fire,

Youth strove to hide it under friendship's
name;

But riper age confess'd a warmer fire,

And love now blush'd at friendship's
weaker flame.

A spreading elm bestow'd its friendly shade;
Delightful refuge from the noontide heat!

Around their flocks a list'ning circle made,
Attentive to her voice — divinely sweet.

Thus sung the nymph: — this melody we hear,
Is spring, soft warbling in the vocal grove;

It's plump tenants breathe their sonnets there,
And rous'd by *Phæbus*, wake to life and
love.

The morning fragrance, and cool temp'rate
air,

The ev'ning murmurs of the whisp'ring
breeze,

Are nature's welcome to the vernal year,
Pledges of warmth, serenity and ease.

O'er the gay lawn the Zephyrs slowly creep,
And, near the grove, their wings with
trembl'ing play,

Seem loth to enter, lest a ruder sweep
Should strip the branches of their infant
spray.

Flora begins her elegance to show,

In sweetest robes of innocence array'd:
Fair as the lilly, or the driv'n snow,
See yonder snow-drop hangs its lovely
head.

The purple violet and the bramble-rose,
Largely diffuse their od'rous sweets around;
Rich in its golden vest the crocus blows,
And silver daisies paint th' embroider'd
ground.

Exalted *Phæbus* gilds th' extensive plain,
And sheds abroad his vivifying rays;
Kind substitute for winter's dreary reign!
Parent of hoary nights, & darksome days.

Could fate be influenc'd by my way-ward
will,

Or heav'n indulgent grant my frequent
pray'r,

No summer's sun should melt, no winter
chill,

But spring eternal constitute the year.

Thus *Delia*. — He with kind encircling arms
Express'd his joy, nor turn'd her cheek
away;

Her gentle breast an equal transport warms,
While *Thyrsis* utters this responsive lay.

Their notes how sweet! yet thy soul-melting
voice

Excels the warbling of the airy throng:
Nor think they now for spring's return re-
joice,

'Tis *Delia's* presence animates their song.

Shrill *Philomela* tries a livelier strain,
Forgetful of her woes: — yon billing doves

Perch'd on one bough, each other entertain
With cooing warmth, — fond emblem of
our loves!

Where'er you tread soft Zephyrs round you
play;

Swift to their posts the anxious Sylphs
repair,

Lest a rude blast should hapless disarray,
The nice-set ringlets of thy comely hair.

The pallid snow-drop droops its flow'ry
leaves

When near thy fairer hand: — thy vir-
tuous breast

The

The white-rob'd goddess, Innocence, receives :

A mansion worthy of its heavenly guest.

The air, replete with sweets that *Flora* pours
From the enclosing purple tinctur'd mead,
Or fraught with odours of *Arabian* bowers,
Does not the fragrance of thy breath exceed.

My soul is chear'd by thy inspiring smiles,
As by the solar beams the teeming earth :
Thy presence winter's tedious hours beguiles ;

Refined source of elegance and mirth !

In thy soft converse every bliss I find ;
Not the cool freshness of the limpid streams

Gives more delight to the laborious hind
Scorch'd with the summer's sun's too ardent beams.

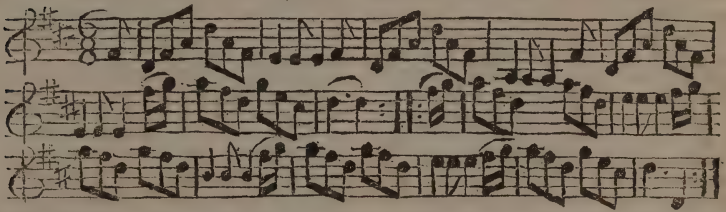
Let fate dispense her gifts or cold or warm ;
Give *Delia*, Heav'n ! she'll every pleasure bring :

Each season, blest with her, has pow'r to charm ;

In *Delia* centre all the joys of spring.

Sandwich.

The PRESS-GANG's JIGG: Or, A Trip to the Tender.



The First and Second Men take Hands and lead thro' the Women's Side and round the Top into their own Places. ♪ The two Women do the same. ♪ The first Couple lead thro' the second Couple and cast up into their own Place. ♪ Cast off and lead thro' the third Couple, and cast into the second Couple's Place. ♪ The first Man turn his Partner with his Right Hand and the third Woman with his Left (his Partner turn the second Man with her Left at the same Time) ♪ The first Couple turn with the Right Hand, and the first Man the second Woman, and the first Woman the third Man with their Left ♪ Lead thro' the second Couple, cast off and turn. ♪ Lead thro' the third Couple, cast up and turn. ♪

As the Public have been pleased to shew so favourable a Reception of our Magazine, they have thereby put it in our Power to extend our Plan beyond what we first proposed. We hope it will be deemed an Instance of Gratitude in us (a Virtue we shall ever with the highest Pleasure cultivate) that we have added to this, and shall continue in each future Number, a *Quarter of a Sheet of the Lives of the Philosophers*, in a Way proper for binding up by themselves at the Conclusion. We shall also continue to add a compleat Map of each County, done from the latest Observations, and after a new Manner, proper to illustrate the Natural History. The Instruments for shewing the Weather will shortly be explained more fully : And every useful Hint and Direction we are favoured with from our Correspondents, will be esteemed a great Favour, and duly regarded.

A CHRONOLOGICAL MEMOIR of Occurrences.

For JULY, 1755.

Breslaw in Silesia.

THE Steeple of the Church of *Adelsback* was lately fired by Lightning ; the Bells were melted, and the whole Edifice

destroyed ; but however, by the Vigilance of the Inhabitants, the Church was saved from being consumed.

L O N D O N.

BY Advices from *Carolina*, dated May 26, we are informed, that the Assembly of that Province have granted 50,000*l.* Currency towards fortifying *Charles Town*.

Whiteball, July 15. By Letters received

from Vice Adm. *Boscowen*, dated off *Louisburg*, 22d of June, 1755, there is an Account, that on the 10th of that Month, the *Alcide* and the *Lys*, two French Men of War, the first carrying 64 Guns and 480 Men, and the last

last pierced for 64 Guns, but mounting only 22, and having 8 Companies of Land Forces on board, being separated from the French Squadron under the Command of Mr. Bois dela Motte, fell in with the English Fleet off the Banks of Newfoundland, and that a Skirmish happened between the said French Men of War and his Majesty's Ships the *Dunkirk* and *Defiance*, in which both the *Alcide* and *Lys* were taken. The French Ship the *Dauphin Royal*, which had been in Company with the two above mentioned, disappeared in the Fog.

Extract of a Letter from on board the Terrible,
Capt. William Holburne, dated June 21, 1755, off Louisburgh.

"By the *Gibraltar*, which sails to-morrow for England, I have just Time to tell you we joined Admiral Boscawen yesterday off Cape Breton, after a Passage of five Weeks and one Day. Ten Days before he took two French Men of War, &c.— We stood close in this Morning to Louisburgh Harbour, and found only five of their Ships got in with the Commander in the second Post. The Commander in Chief, with eight Sail, is still at Sea, so that we are in some Hopes of catching him, as there will be a Squadron kept cruizing off here for some time. *M^r Namara* convoyed them but 200 Leagues, and returned again. Some of Admiral Boscawen's Ships are gone to *Halifax*: We go to-morrow with some more; and shall then come down and relieve Boscawen and *Mosby*.— Admiral Boscawen saw four Sail of French Men of War more, and chased, but lost them in a Fog. We have a Snow with us, which was taken the other Day, bound to Canada."

Extract of a Letter from on board the Anson,
Capt. Mann; in Adm. Boscawen's Fleet,
June 21.

"The two French Ships taken by a Part of our Squadron are both new Ships, and sent into *Halifax* in *Nova Scotia*, the Rendezvous of the Fleet. Besides the seven Ships from England, which have joined us, we daily expect five more from *Virginia*. There were in all, by what we can learn, seven Ships of the Line of the French. We have since taken a Brig and a Snow, and carried them into *Halifax*. I judge the Admiral's Orders are to take all we meet with, by Reason he hath given our Captain Orders to fight every Thing we are able to engage with."

July 1. This Day the Parliament was prorogued to Thursday, August 14.

4. His Royal Highness the Duke of Cumberland going to Portsmouth to see the Fleet, was this Morning at eight waited upon by the Lord Anson, Sir Ed. Hawke, Vice Ad-

miral West, and the several Captains of his Majesty's Ships, and with great Ceremony conducted to the Prince, a 90 Gun Ship, on board of which his Royal Highness dined. This was done with Flags flying, Drums beating, and all possible Demonstrations of Joy and Respect. As soon as his Royal Highness went on board the Prince, the blue Flag was struck, and his Royal Highness's Standard hoisted at the Main-topmast-head; upon which all the Ships at Spithead saluted him with twenty-one Guns each. When his Royal Highness left the Ship his Standard was struck, and the blue Flag hoisted again; upon which the Prince saluted with twenty-one Guns, and all the Ships in the Fleet with the same Number, and the Admirals and Captains attending his Royal Highness back in their several Boats, in the same Order as that in which they went off.

5. This Morning his Royal Highness viewed the Fortifications, attended by the principal Engineer, and the General Officers: from thence he went to South-Sea Castle, and Cumberland and Port Bridge Forts, and returned to Portsmouth about 2 o'Clock; when the Governor, the Admirals, Sea Captains, General Officers, &c. were entertained at Dinner by his Royal Highness. In the Evening he reviewed the Marines on the Glacis.

6. This Morning his Royal Highness set out from Portsmouth, dined at Windsor Lodge, and in the Evening came to Town.

13. At the French Church in Threadneedle-street M^r. Normand and M^d. Marzeau, both of that Nation, renounced the Errors of the Romish Church, before the whole Congregation. The Ceremony was very awful.

16. This Day there was a Trial of the Pix at Westminster of all his Majesty's Gold and Silver Coin, coined within the Tower of London, since July 1750, on which Occasion most of the Lords of the Council were present. The Ld High Chancellor gave a most excellent Charge to the Gentlemen of the Jury, and then withdrew; as did the other Lords of the Council. Upon the Trial the Jury found all the Coins in Weight and Fineness perfect Standard, and reported them so accordingly.

22. About One o'Clock this Morning the French Ambassador set out for France.

MARRIAGE.

July 5. Sir Peter Leicester, Bart. to the Daughter of the late Sir Wm. Flemming, Bt.

DEATHS.

July 5. The Hon. M^s. Molly Wenman, youngest Daughter to the Rt. Hon. the Lord and Lady Wenman.

13. The Rt. Rev. Dr. John Coneybeare, Bishop of Bristol, and Dean of Christ Church, Oxon.

B—KR—TS.

June 24. Thomas Glasby, of St. Mary Islington, Victualler.
 Tho. Cotton, of Staffordshire, Ironmonger.
 July 1. Charles Mackintosh, of London, Merchant.
 Jos. Jaques, of Chippenham, Wilts, Grocer.
 5. William Powell, of Charing-crofs, Hatter and Hofier.
 Theophilus Thurogood, of Chelmsford, Innholder.
 George Bayley, of Manchester, Hofier.
 Owen Jones, of Fleet-street, Barber and Peruke-maker.
 W. Stephenfon, of White-chapel, Victualler.
 8. Edward Irwing, of Winchester, Linnen-draper.
 Thomas Reynolds and Valentine Wright, of London, Lightermen and Dealers in Coals.
 David Murray, of Westminster, Taylor.
 12. Edw. Jourdan, of Westminster, Coach-maker.
 Damaris Bishop, of Fleet-street, Widow, Victualler.
 Jacob Bright, jun. of Coventry, Worsted-weaver.
 Francis Taylor, of Duke's Place, London, Vintner, and since of Mark-lane, Cutler and Dealer in Wines.
 Tho. Manhers, of Westminster, Salesman.
 15. William Fargufon, of Newcastle upon Tyne, Mercer.
 Samuel Holland, of Bishopsgate-street, London, Druggift.
 22. George Baffett, of St. George, Hanover-square, Druggift.

BILL of Mortality from June 17. to July 22.

Buried		Chriftened	
Males	867	Males	664
Females	923	Females	645
Under 2 years old 689		Buried,	
Between 2 and 5 186		Within the walls 142	
5 and 10 — 55		Without 415	
10 and 20 — 54		Mid. and Surry 840	
20 and 30 — 128		City & Sub. Weft. 393	
30 and 40 — 163			
40 and 50 — 150		1790	
50 and 60 — 146			
60 and 70 — 108		Weekly June 24. 392	
70 and 80 — 77		July 1. 358	
80 and 90 — 32		8. 349	
90 and 100 — 2		15. 352	
100 and 109 — 0		22. 339	
1790		1790	

Obferwat. on the Weather, at Temple Bar.

June	Baro- meter.	Therm.	Pluvia- meter.	Hygro- meter.
24	29 : 4	30 $\frac{1}{2}$	24 : 7	10 Moist.
25	29 : 9	30	0 : 6	19 Dry.
26	29 : 9	31	0 : 0	4 M.
27	29 : 8	30 $\frac{3}{4}$	0 : 8	6
28	29 : 7 $\frac{1}{2}$	31	2 : 9	16
29	29 : 8 $\frac{1}{2}$	30	0 : 0	14
30	29 : 5	30	21 : 8	30 M.
July 1	29 : 4	30	18 : 7	42
2	29 : 5	30 $\frac{1}{2}$	9 : 5	29
3	29 : 6	30 $\frac{1}{2}$	0 : 0	23 D.
4	29 : 9	29 $\frac{3}{4}$	0 : 0	22
5	29 : 9 $\frac{3}{4}$	31	0 : 0	27
6	30 : 0	31	0 : 0	6 M.
7	30 : 0	29	23 : 4	7
8	30 : 1	30 $\frac{1}{2}$	24 : 2	11
9	29 : 8	29 $\frac{1}{2}$	1 : 2	12
10	29 : 7	30	3 : 8	14
11	29 : 7 $\frac{1}{2}$	30 $\frac{1}{2}$	1 : 2	4 D.
12	29 : 9	31 $\frac{1}{2}$	0 : 0	2
13	29 : 8	32	0 : 0	13
14	29 : 9 $\frac{3}{4}$	31 $\frac{1}{4}$	0 : 0	23
15	30 : 0	32 $\frac{1}{2}$	0 : 0	34
16	29 : 8 $\frac{3}{4}$	32	0 : 0	42
17	30 : 0	31	0 : 0	22
18	29 : 7 $\frac{3}{4}$	31	0 : 9	9 M.
19	30 : 1	31 $\frac{1}{4}$	0 : 0	13
20	29 : 9	31 $\frac{1}{2}$	5 : 5	17
21	29 : 8	32 $\frac{3}{4}$	0 : 1	28
22	29 : 6 $\frac{1}{4}$	31 $\frac{3}{4}$	12 : 4	35
23	29 : 7	31 $\frac{1}{4}$	7 : 2	17
24	29 : 7	28 $\frac{1}{2}$	36 : 5	37

COURSE of EXCHANGE.

London, July 22, 1755.

Amfterdam, ———	36	7
Ditto at Sight, ———	36	4
Rotterdam, ———	36	8 $2\frac{1}{2}$ Uf.
Antwerp, ———	no	Price
Hamburgh, ———	34	8
Paris, 1 Day's Date, ———	30	$\frac{3}{4}$
Ditto, 2 Ufance, ———	30	$\frac{1}{2}$
Bourdeaux Ditto, ———	30	$\frac{1}{2}$
Cadiz, ———	38	$\frac{3}{8}$
Madrid, ———	38	$\frac{3}{8}$
Bilboa, ———	38	$\frac{1}{8}$
Leghorn, ———	47	$\frac{1}{8}$
Naples, ———	no	Price
Genoua, ———	46	$\frac{7}{8}$
Venice, ———	49	$\frac{1}{8}$ 449
Lifbon, ———	5s.	4d. $\frac{3}{4}$
Porto, ———	5s.	4d.
Dublin, ———	9	$2\frac{1}{8}$

Account of Books in our next.

Miscellaneous Correspondence, in Prose and Verse.

For *AUGUST*, 1755.

A clear and succinct Account of NORTH AMERICA,
Historical, Geographical, &c. *continued from Page 112.*

Connecticut is divided into *five counties*, and within them are sixty-eight *town ships*. As all males from sixteen to seventy pay a poll-tax, their numbers may be the more readily computed; as it may again by the number of their *Militia*, which are from the age of sixteen to fifty, and in 1749, were 16,000, which number multiplied by five, seems to me the full amount, being 80,000, but this alone much over balances *Canada*, by an account we are certain in, as is that of the *Militia*.

Taking again the *four provinces* together, they have many advantages over *Canada* in soil, climate and situation for trade, having in them seven fine navigable rivers and capacious harbours easily entered, and as they carry on a great traffic, are probably richer and more at ease than the *French*, and therefore likely to be more resorted to, and to propagate faster.

NEW-YORK government was found in 1752 to contain 65,000 inhabitants, and the *houses* in the city to be 1500, and is said since to have received a considerable foreign increase, but that being so short a space past, I cannot, as some writers have done, think of making them now to be 100,000, not seeing the possibility of such an increase, even suppose the town is calculated separately, and indeed I should imagine that 80,000 is an ample sum, and more than my calculation will admit, even suppose a mistake in my authority of ten years forward. This town has something the advantage of *Boston*, in having equally a fine harbour and that longer open in the winter, which is a considerable article in point of trade, it being in the lat. $40^{\circ} 40'$ —west long. $47^{\circ} 4'$, seated on an island at the mouth of *Hudson's* river, about fourteen miles long and about three broad; the province is divided into ten counties, of which *Albany* makes the most considerable figure except *New-York*, as its chief town of the same name is the frontier of the colony to the north, and for that reason fortified and garriſon'd, and is about one hundred and fifty miles up *Hudson's* river above *New-York* city. Here likewise most

usually the *Sachems* or chiefs of the *Iroquois* meet the governors of our northern colonies to renew their alliances, and concert measures for their mutual defence against the common enemy.

NEW JERSEY, or more properly the *east* and *west* *JERSEYS*; *east Jersey* extends one part along the sea coast, and the other on *Hudson's* river, from a certain port called little *Egg-harbour*, to that part of the same river that is in lat. 41° . divided from *west Jersey* by a line drawn from *Egg-harbour*, or *Creswick* river, *Stony* river, and the south branch of *Baritan*. Its extent on the coast, and on *Hudson's* river is about 100 miles, its breadth very unequal; *west Jersey* is divided from it again by a *north* and *south* line, and together contain, or are divided into eight counties, some say twelve; I do not know which is right. The principal town of *east Jersey* is *Amboy*, at the mouth of the river *Baritan*, and the capital of *west Jersey* is *Burlington*, seated on an island in the middle of *Delawar* river, to the northward of *Philadelphia*. The computation of inhabitants in both the *Jerseys* 1749 was 50,000, but I am pretty well informed, that is the utmost at this time.

PENSILVANIA, though one of the latest planted colonies, has by a rapid increase, but one way to be accounted for, become of a sudden the most populous of all the *British* colonies. It is divided from the *Jerseys* by the river *Delawar*, that has its source amongst the *Iroquois*, and is navigable about two hundred miles. *Philadelphia* is the capital, and generally esteemed the finest town in the *British* dominions considered all together, it is seated in lat. $40^{\circ} 30'$. The form is an oblong of two miles, extending from the river *Delawar* to another called *Schoolkill*, and each front to these rivers one mile. In the centre of the town is a square of ten acres, and each quarter of the city a square of eight acres. The main street is one hundred feet wide, parallel to which is eight streets, four on each side, and these are traversed at right angles by twenty more, all of 30 feet wide, with a fine quay, and other maritime conveniencies;

veniences; the houses are generally built of brick, well glazed, and covered, instead of slate or tile, with a kind of clap-board sawn into squares. In 1749 the number of houses were two thousand and seventy-six, with eleven houses of public worship; and in 1753, they were said to be increased to two thousand three hundred, or thereabouts. A little before king William's death, the inhabitants were scarcely 14,000—the increase by English since that time, from England, and in the colony, is about 126,000—and by foreigners, chiefly Germans, about 110,000, in all 250,000; the nearest computation of the present subsisting inhabitants.

MARYLAND, the next adjoining colony, is situate between lat. 38 and 40°, long. 44 and 48°. The north end of the bay of Chesapeake divides Maryland into two parts, called the eastern and western shores. It is bounded on the east by part of Pennsylvania and the Atlantic ocean, on the south by Virginia, and on the west by the Apalachean mountains; the extent from north to south is about 140 miles, and from east to west, as it respects what is really settled, about 100 miles. There has not been any exact account taken of the white inhabitants, for there being no considerable towns, we can only guess at the number, by an account we have of Virginia, which being computed at ninety thousand, and this province rather fewer, we suppose there may be about 85,000.

VIRGINIA is situate between 36 and 39°, lat. 74 and 60° long. It has the river Potomac on the N. E. the Atlantic ocean on the east, Carolina on the south, and the Apalachean mountains on the west, extending from north to south about 240 miles, and from east to west about 120 miles settled. In this colony, as in Maryland, there are not any noted towns, the inhabitants living much dispersed for the convenience of enlarging their plantations, so that our computation of inhabitants results principally from the Militia roll, by which, and accounting exemptions, &c. we say, as before, that the amount is about ninety thousand.

CAROLINA is divided into two provinces, the north and south; north Carolina is bounded by Virginia on the north, the ocean on the east, by a line drawn in 34 degrees from the ocean to the mountains on the south, and by that part of Florida possessed by the Indians on the west, and is divided into fourteen parishes or townships; but we do not hear of any church or town of note in the country.

South Carolina is divided from the north, by the above-said imaginary line, by the ocean on the east; by the river Savannah, which separates it from Georgia, on the

south, and by the Indian country on the west.

The capital of both Carolinas is Charles town, situate in 32 degrees 45 minutes, it had in 1739, 450 houses, and a considerable number of warehouses; it was then burnt down, and has been since rebuilt handfomer, and now has about six hundred houses. It is thought that there are more inhabitants in the north than in South Carolina, though not any significant towns; some say, that in the north are 45,000 whites, but as it is agreed that the two provinces do not considerably differ, and as in South Carolina their Militia is not above 5,000, therefore giving the north provinces 35,000, and the south 30,000, seems to be nearer a right calculation than any now extant.

Georgia is bounded by the Savannah river on the north, by the Indian country on the west, by a line drawn athwart the upper part of the Peninsula of Florida to the out-fall of the river San Matheo on the south, and by the Atlantic ocean on the east, between the lat. 30° 35' and 32° 15', or thereabouts. As this is but a modern settlement, and has varied in a short space very considerably, the nearest computation of its inhabitants is about 6,000.

This is the lowest computation ever made of the inhabitants of America, and I have some reason to think it much nearer the truth than any other extant—The amount then of whites is 986,000—One sixth of these males capable of labour, or what are usually called fighting men, is 164,200, and suppose, as is calculated on the part of France, one fourth of these may on proper emergencies be spared for the war, amount to 41,050, nearly the number of all the inhabitants in New France, except Louisiana, not esteemed to have more than six or seven thousand inhabitants, including the auxiliary Indians. And the reader will readily perceive that my computation is highly in favour of France, and consequently, that the French power on that side, is rather to be guarded against in the increase, than in any respect to terrify us in the present, and that it is more our business to destroy the forts they erect, than to build any of our own. And as that upon the Ohio and at Crown-point seem the most terrible, I shall now, by way of conclusion, attempt to open that matter to the reader.

Crown-point, as has been observed before, is at the head of the LAKE Champlain, and as we understand it within the province of New Hampshire, and being on the frontier of our strongest colonies, is very differently constructed and garrisoned from any other on that side. The French propose by this, at once to interrupt our back trade with the

Indians, and to make it a kind of *frontier* garrison to the country they have invaded on the south side of *St. Laurence* river, where we say, they have not a right to be at all, but as this *fort* neighbours on *New Hampshire* settlements, and is in the country of the *Iroquois*. It seems wonderful how it happened, that either the *English* or *Indians* permitted the *French* to build a fort there, as I cannot find a clear account of this matter, it is very natural to conclude, a strange *indolence* or *negligence* somewhere; however, as that does not regard our present enquiry, it may not be amiss to observe, that those who are said to be ready and able to take *Quebec*, cannot be under any difficulty in destroying a fort, not in any respect of equal capacity to resist, and at certain seasons of the year incapable of reinforcement, and as with the destruction of this fort, all complaints against the *French* will cease on that side, the execution seems speedily necessary.

The fort or forts on the *Ohio*, I know not which, for all our accounts are strangely confused, the river whereon one or more is, or are erected by the *French*, is properly within the province of *Virginia*. This famous river has its source in some small lakes on the back of *New York* province, to the westward of the *Alligany* mountains, south of the *Iroquois*, and east of the lake *Errie*, its course is nearest south-west, supplied with various streams, and passing through a fine country for several hundred miles long, in about the lat. 37° and long. of 89°, it falls into the great river *Mississipi*.

The chief inhabitants about this river at present, are the *Twightwais*, equal in number to the *Iroquois*, and equally free and independent, with this nation or others on the *Ohio*. The *English* have traded for near a century, but the *French* having ever since their first settlement on the *Mississipi* in 1699, been crawling up that river, and building forts as they proceeded, at length got into the *Ohio*, and there erected what we are now contending about. But here again we are under the same amazement as at *Crown-point*, for our writers tell us, that when the *English* only proposed to build a fort on that river, the natives even took the attempt amiss, though our friends, and were determined to prevent it; and as they say at the same time, that the *French* had no particular friendship with them, yet that they permitted the *FRENCH* to build those in dispute; nor as I can find, are they desirous that we should destroy them, which seems truly problematical.

In answer to this, one of our late writers on the subject, gives the following extraordinary reason.—“He says, it is probable

the *French* would not have been able to compass their purpose, had not the *Indians* either stood neuter, or deserted our party; the reason of their so deserting us seems to be, that we proposed to have built a fort and measured out some lands, therefore no wonder they should take part with the *French*, who openly declared their design of establishing themselves, than with the *English* who were clandestinely depriving them of their lands, at the time they professed friendship,” which reasoning in brief is this. That those who robbed the *Indians* publicly, were less culpable in their opinions, than those who privately intended it; perhaps this may be the *Indian* way of reasoning, but it may not be amiss to say there is something *savage* in it. For though I would not justify fraud, yet I do not conceive how an intention to commit it, is worse than an act of violence.

In short, until these matters are better cleared up, or better reasons given, why, or wherefore this or that has happened, so much in favour of the *French*, and to our detriment, we must conclude against ourselves, that the *French* are either more fair in their dealings, more skilful managers, or more diligent in the execution of their purposes; or that while the *English* are closely attending to the improving what they have, the *French* alacrity is carrying them on, to grasp at what they have no means of improving. These ideal pursuits of that volatile nation have a very bad effect on the phlegmatic disposition of the *English*, and figures their flights according to our own poet thus.

Sometimes we see a cloud that's dragonish,
A vapour sometimes like a bear, or lion,
A towering citadel, or pendant rock,
A forked mountain, or blue promontory
With trees upon't, that nod unto the world
And mock our eyes with air.

At the same time, as these flying people, by a piece of dextrous smithery, link two colonies together of at least twelve hundred miles distance, and propose after the examples of *Cortez* and *Pizarro*, to command such an extent of country with a handful of men, against all the reasons of number, courage, and skill, we may say of the *Frenchman*, as *Juvenal* of the Greek.

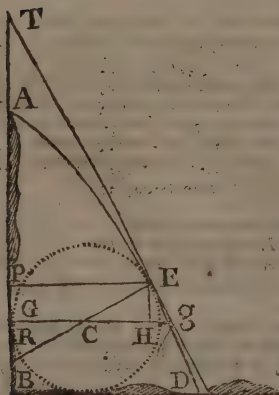
————— Omnia novit
————— In cælum Jusseris, ibet.
————— All things he knows,
And bid him fly to heaven, to heav'n he goes.

Between *GEORGIA* and the *Mississipi* is the *Peninsula* of *Florida*, in possession of the *Spaniards*, and hath one town on it slightly fortified,

The only town in this province is *New Orleans*, seated about one hundred and twenty

miles up the stream, it was founded in 1717, but not much inhabited until after the famous *Mississipi* bubble, when it falling into the hands of the crown, it became considerably improved and fortified. The *patentees* had before built a *fort* at the mouth of the river, and since there have been two more considerably above *New Orleans*, for the benefit of trade. I do not any where find a precise *state* of this *town* at present, but it is generally supposed to be about the size of *Charles town* in *South Carolina*; it has one way or another a very pretty trade, and may probably contain between *two* and *three thousand inhabitants*, and the whole colony about 4 or 5000 whites, the utmost we have been able to discover. That they have an *illicit trade* with the *Spaniards* is out of doubt, from prizes taken in the late war; but this is said to be only carried on by particular people, by some authority, and the generality little the better for it. And in conclusion, it is to be observed, that if it be convenient for the *Spaniards* to transmit their private property this way from *New Mexico*, they will certainly do it, as a considerable *saving* in both *freight* and *indulto*, and the *French* at the same time be handsome gainers, by *freight*, *commission* and *remittance*; but this may one day convince both *Spaniards* and *English*, that the *court* of *France* acted wisely when they made this settlement, and which on our part is only now to be amended, by preventing any kind of union between this colony and *CANADA*.

Question 15, answered by Mr. JOHN SHIPMAN.

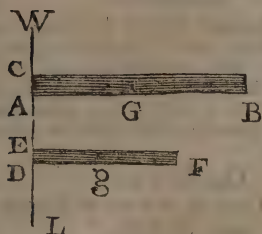


From which Equation, y may be found, and consequently all the rest.

Mr.

Mr. CHARLES WILDBORE says, that the greatest Circle inscribed in a Semi-parabola will be, when $GB = \frac{1}{2}$ the Circle's Diameter; and hence, by an easy Process, finds the Diameter of the Wheel = 17 Feet nearly.

Question 16, answered by Mr. JOHN SHIPMAN.



LET the two Beams AB and DE be fixed in the immoveable Wall WL; bisect AB in G, and DE in g, which Points will represent their Centers of Gravity; and suppose the Weight of each Beam to be accumulated in G and g respectively.

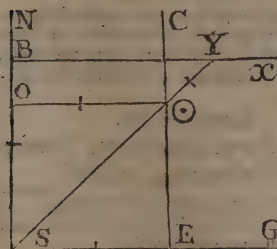
Put $AB = 15 = a$, $AC = 1,5 = b$, and $DE = 10 = c$, $DE = 1 = d$. Then, the whole Force which tends to break the greater Beam at A, is $= \frac{a^2 b^2}{2}$; and that

which tends to break the lesser at D, is $= \frac{c^2 d^2}{2}$; that is,

the Strefs at A, is to that at D as $a^2 b^2$ to $c^2 d^2$, or as $a^2 b^2$ to c^2 (because $d = 1$). But the Number of longitudinal Fibres, whose Adhesion tends to preserve the greater Beam from breaking is $= b^2$; and the Number of such Fibres in the lesser Beam $= d^2$: Now if GAC and gDE be considered as bended Levers, the whole Effort which tends to preserve the greater Beam from breaking will be $= \frac{b^3}{2}$, and that of the lesser $= \frac{d^3}{2}$. Whence, the absolute Strength of the greater Beam $= \frac{b^3}{2 a^2 b^2} = \frac{b}{2 a^2}$, and that of the lesser $= \frac{d^3}{2 c^2 d^2} = \frac{d}{2 c^2}$; hence, the absolute Strength of AB is to that of DE as $\frac{1}{300}$ to $\frac{1}{200}$, or 2 to 3; consequently, the Strength of the lesser Beam exceeds that of the greater, by half the Strength of the greater Beam.

Mr. CHARLES WILDBORE's Answer.

IT is generally allowed that the Strength of Timber (independent of the Strefs) is as the Content: Now if a Piece of Timber 10 Feet long, and 1 Foot square, will bear 457143 lb. in the Middle before it breaks; one of 15 Feet long, and $1\frac{1}{2}$ square will bear 1542857 lb. Now allowing a Cubic Foot of Oak to weigh 56 lb. and that the Strefs of Timber is as the Content drawn into the Length; we have 5600 lb. for the Strefs of the lesser Piece, and 28350 lb. the Strefs on the greater (allowing them to be supported horizontally at both Ends): From which the Weight that each will bear is found, and the Greater will bear more than the Less $= 1062964$ lb.



Question 17, answered by J. D. G. N.

DRAW the indefinite Line SG East, set off the given Departure $= 84$ Miles from S. to E. at S likewise draw the indefinite Perpendicular SN, then set off the Diff. Latitude $= 100$ Miles from S to B, from B draw the indefinite Lines BX, on E draw the Perpendicular EC infinite; and in your Compasses take the Distance run after the Departure was taken $= 34$ Miles; then, by a Pin as a Centre at C turn the Compasses with one Foot in C in the Line EC till the other Foot falls on the Line BX, as at Y; then SY is the Distance sailed $= 148$ Miles. Per Trig. we have the

Angle of Course $= BS Y$, North-East, $2^\circ 30'$ more East.

New QUESTIONS to be answered.

Question 39. By TYCHO, jun.

IN how many Years to come will our Pole Star be nearest to the Sun, and how many Degrees and Minutes will the Distance be?

Question 40. By Mr. T. WOOD.

GIVEN the three nearest Distances from the three Angles of a plane Triangle to the Circumference of the inscribed Circle $= 20$, 30 , and 40 , to find the Circle and Triangle.

Question 41.

By Master SLADE, of the Academy at Deptford.

IF a Merchant Ship sets Sail from *Brest*, and a Privateer sets Sail from the *Lizard* at the same Time, the former sailing 8 Miles per Hour, and the latter be able to shape a S. S. West Course; How many Miles per Hour must the latter sail to meet the former, and at what Distance and Time?

Question 42.

By Mr. CHARLES WILDBORE.

THE greatest Cylinder that can be inscribed in, and the least Cone than can be circumscribed about the Solid generated by the Revolution of a given Curve, will be when the Subtangent is equal to twice the Altitude of the Cylinder, or two Thirds of the Altitude of the Cone. Quære, the Demonstration geometrically?

Question 43.

By Mr. CHARLES WILDBORE.

IN a plane Triangle there is given the Difference between the Sum of it's Sides and Base $= 3107.7 = d$, the Difference of the Angles at Base $= 25^\circ = a$, and the Area $= 157145 = s$. Quære, the Sides and Angles?

Question 44.

By Mr. JOHN GOODHEAD.

GIVEN the Length of the slant Side of a Cone $= 20$ Inches $= s$. Required the Area of the greatest Parabola that can be cut from such a Cone, when the Solidity of the Cone is a Maximum?

Question 45.

By Mr. ABRAHAM STONE, of Chatham.

IN the Trapezia ABCD are given the Side AB $= 5.00 = a$ Chains per Gunter, BC $= 8.00 = b$, and CD $= 11.00 = c$. Quære the Side AD, the Angles A, B, C, and D, and the Area in Acres, when the Field is the greatest possible under the given Dimensions.

Question 46.

By Mr. THO. BARKER of Brampton, Suffolk.

GIVEN the Area of a plain Triangle $= a$, and the Difference of the Segments of the Base $= b$: Quære the Triangle, when the Perpendicular, Base, and Sides are in Arithmetical Progression.

Question 47.

By Mr. GEORGE MURRANT.

HAVING the Perimeter, and Difference between the longest, and each of the other two Sides, to find the Sides of a Triangle.

Question 48.

By Mr. CHARLES DYER.

GIVEN the Radii a , b , and c , of three Circles inscribed in the Corners of a Triangle: Required a Theorem to determine the Radius of a fourth Circle, which being inscribed in the same Triangle, shall touch the Convexity of those three given Circles.

Question 49.

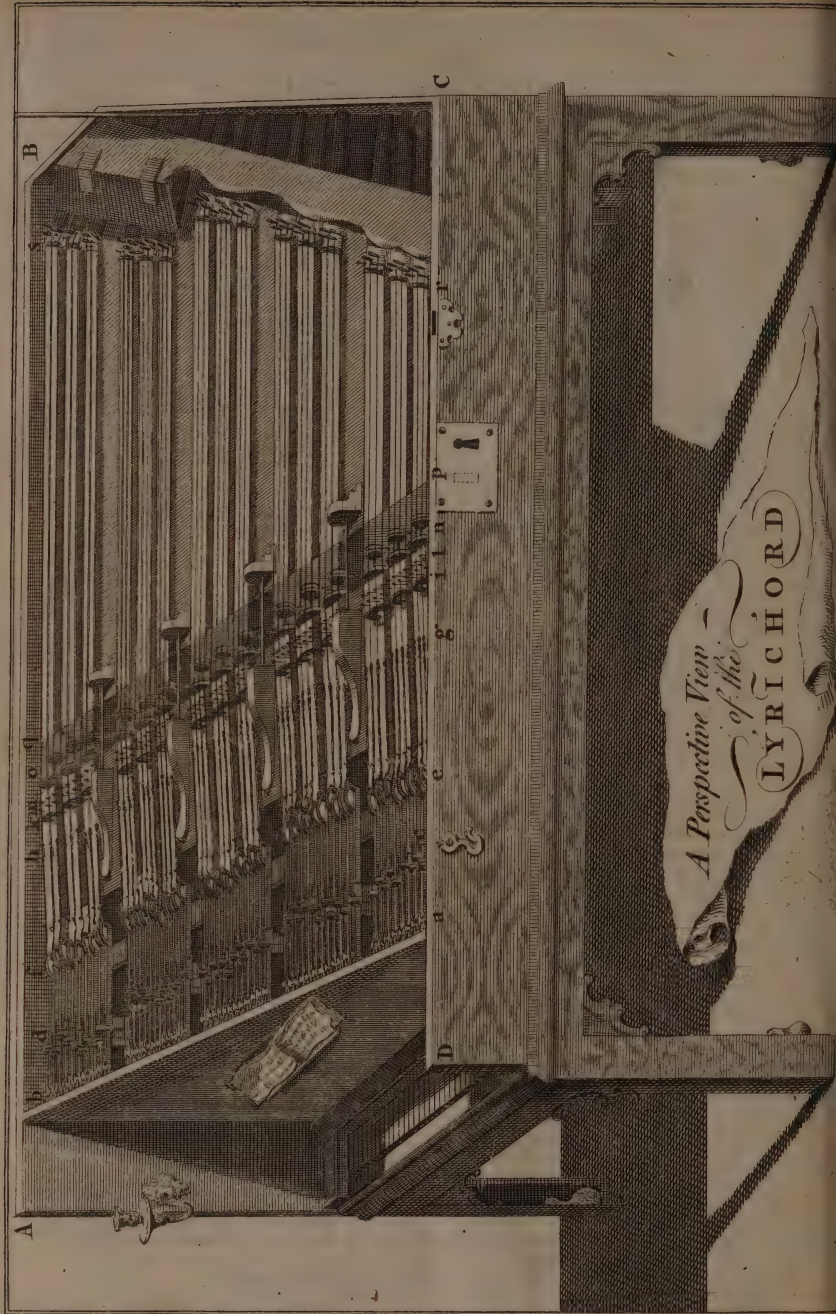
By Mr. THOMAS TODD of West-Smithfield.

GIVEN the Solidity of any regular Polygonal Pyramid $= s$, the Number of Sides $= n$, to find the Dimensions when the whole Surface (including that of the Base) is a Minimum.

Question 50.

By Mr. EDW. JOHNSON, Teacher of Mathematics, at Hull.

THE Equation of a Curve being $y - a \times a^2 = x^2 y$, its Area $= 100$, and $a = 12$; Quære x the Absciss?



A Perspective View
of the
LYRICHORD

A Description of the Nature and Construction of the LYRICHORD.

IT is presumed that most of our Readers either understand or delight in Music, or at least will be pleased with an Account and Description of the LYRICHORD, which, (to use the Inventor's own Words) is the most curious musical Instrument ever invented; we are told by him, that it has cost him 500 Pounds and 20 Years Study and Application to compleat it, and that it is now brought to a great Degree of Perfection. That it imitates the *Violin*, *Bass-Violin* and *Duble Bass*; and tho' it has no *Pipes*, yet, when play'd full, it resembles a perfect *Organ*; and is touch'd by *Keys*, like an *Harp-sicbord*. That it admits of playing *loud* and *soft*, and the *close Shake*; as also of *swelling* any single Note or many Notes together by the single Pressure of the Fingers. But, (what is most of all surprizing, and indeed incredible if not seen, yet plainly demonstrable to every one) its *Strings* never go out of *Tune*, as long as the Materials of which the Instrument consists remain entire. A Thing hitherto deem'd impossible to find out.

This is the Author's Account of his Machine, to make good which, and to gratify the Curiosity of the Publick, we have given a Perspective of the Whole laid open, and shall here subjoin a concise Description of the essential Parts thereof, having first premised, that they consist of five Systems of Strings; each System of three Bars or Sets of Strings; and four Strings in each, except one Set of the longest of all, which has but 3 Strings; so that upon the whole there are 59 Strings in the Instrument. These Strings are severally stretched by Weights appended to Levers, and made to sound by being drawn down on the Periphery of moving Wheels to be touch'd by them instead of the *Quills* in a common *Harp-sicbord*, or a *Bow* in the *Violin-kind*. Therefore,

a b e f represents the System of 59 Brass Levers; on the inmost End of each Lever is Part of the Circumference of a Circle (somewhat more than a Quadrant) in the Centre of which Circle is an Axis upon which the Lever is supported and moves on a proper *Fulcrum*. These circular Parts all appear in a Row from *e* to *f*.

From *a* to *b* on the under Side of each Lever is hung a long cylindric Weight of Lead about an Inch in Diameter, more or less, which answers the Purpose of a *Ballance* or *Poise* to the Lever when barely connected with the String.

From *e* to *d* appear the *Screws* by which large Weights are moved forwards and back-

wards on the Levers, proportion'd in such a Manner as to give a *due Degree of Tension* to each respective String. In *tuning* the Instrument these *Screws* are moved with a *Key*, and consequently the Weight, till the String acquires its proper Tone; and when once they are put in Tune, they must always remain so, (unless disordered by Accident) because they are always under the same Degree of Tension from the equal Action of the Weights. And in this consists the *peculiar Nature and Artifice* of the LYRICHORD. Note, the *Weights* we now speak of, are long, wide, and thin, that they may move freely by each other under the Levers.

From *e* to *f* appear the *circular Arches* at the End of the Levers, as was said before; in each of these a Pin is fix'd near the Lever, on which is put the Loop of *Brass Wires*, or *Silken Strings*, which on the other End are connected with the *musical Strings*, and by which they are stretch'd, and easily taken on or off.

From *i* to *k* are the *Bridges* on which the Strings are strain'd in each System, and which terminate their musical Length on this Part.

From *i* to *m* is a Row of *Brass Jacks* (as we may call them) one to each String, which hang upon the String by two Hooks; and when put into Motion, draw the String down on the Wheel. They are put into Motion by the Keys which are touch'd by the Hand of the Musician as in a *Harp-sicbord*; only, by a double Lever below, these move downward, as they, by a single one, move upwards. The Hooks on the Tops of the Jacks are adapted to the Strings, by a *Nut* and *Screw*.

In the open Part *n o p q* are placed the *Wheels* and *Pulleys* on an Axle about 5 or 6 Inches long, and so that the Perimeter of the Wheels in each Set is but a little below the Strings; for one *Wheel* suffices for a Set of 4 Strings: there are therefore 3 *Wheels* in a System, and 15 in the whole. The Surfaces of these are fitted in a proper Manner to strike the Strings when by the Jacks they are drawn down upon them for a *momentary Touch*. Instead of *Rosin* they apply *Tallow*, sometimes, to the Surface of the Wheels. They are about 4 Inches in Diameter and moved by the Machinery within-side, all at once, and with different Velocities, those which touch the shortest Strings moving fastest. When the Machine is wound up, they are all set a going by a great Weight on the Back-part of the Instrument.

In the Space *p q r s* lie all the Systems of Strings, some of which are Wire, others Catgutt, and the larrest Sort wrought or cover'd with Silver-wire, like those of
the

the largest *Bass-Violins*. Between the Bridges, the longest Strings are about 30 Inches, and the shortest about 6; as near as we can recollect, having seen this Instrument but once.

The *Lid* or *Cover* of the Instrument consists of *two Parts*; in Playing, one is shut down generally, and the other, which lies over the Strings, is moveable up and down by the Foot of the Musician, by which Means

he can swell the Notes, and make them louder or softer at Pleasure.

What farther relates to this singular and curious Invention must be deferr'd 'till we come to treat of the *Philosophy of Music*; in the mean time we hope an Idea thereof will not be difficult from this Representation; and such as have Opportunity, and Taste, will, we imagine, find it well worth their While to see the Instrument itself.

EPISTOLARY STANZAS

From Miss *Eliz. Carter* to Miss *H—H*.

WHILE soft thro' water, earth and air
The vernal spirits rove,
From noise, my dear, and giddy crowds
To rural scenes remove:

The mountain Snows are all dissolv'd,
And hush'd the blust'ring gale,
While fragrant Zephyrs gently breathe
Along the flow'ry vale.

The circling planets constant rounds
The wintry wastes repair,
And still from temporary death
Renew the verdant year.

But ah! when once our transient youth,
(The spring of life) is o'er;
That smiling season takes its flight,
And must return no more!

Yet judge by reason's sober rules,
From false opinions free;
And mark how little, pilf'ring years
Can steal from you and me.

Each moral pleasure of the heart,
Each smiling charm of truth,
Depends not on the giddy start
Of wild inconstant youth.

The vain coquet whose empty pride
A fading face supplies,
May justly dread the wintry gloom,
Where all its glory dies.

Leave, such, a ruin to deplore
To fleeting forms confin'd; —
Nor age nor wrinkles discompose
One feature of the mind.

Amidst the universal change,
Unconscious of decay,
It views, unmov'd, the scythe of time
Sweep all, besides away.

Fixt on its own Eternal Frame,
Eternal are it's joys:
While born on transitory wings,
Each mortal pleasure flies.

While ev'ry short-liv'd Flow'r of sense
Destructive years consume,
Thro' friendship's fair enchanting walks
Unfading mirtles bloom.

Nor with the narrow bounds of time
The beauteous prospect ends,
But lengthen'd, thro' the Vale of Death,
To Paradise extends.

A MEDITATION

Upon returning Home after preaching.

Written by a Clergyman now in Virginia, who has the Care of Seven Churches, the nearest of which is 5 miles distant from his abode: being part of his reflections on riding back from duty in a night which was very dark, and rainy. Sept. 16, 1750.

TO-day my tongue, the glory of my frame,
(Far undervaluing such high Dignity)
Held office, of CHRIST'S advocate with man.
Immortal souls, of more important worth
Than *Opbir's* or *Peru's* exhaustless mines,
Are trusted to my care——immensest trust!

What, if some wretched soul (tremendous thought!)

One, favour'd with the Gospel's joyful sound,
Now lost, for ever lost thro' my neglect,
In dire, infernal glooms (more tenfold dark
Than what surround me now) with flaming
tongue

Be heaping execrations on my head?

Whilst here, untouch'd, I dream my fears
away!

What, if some ghost, cut off from life and
hope,

With fierce despairing eyes uproll'd to
heav'n,

That wildly glare and witness tortures deep
Be yelling horrid——“LORD avenge my blood

“On that unpitied wretch, who saw me run
“With full carrier the broad enchanting road

“To these devouring fires, yet warn'd me
“not——

“Or faintly warn'd me——and with languid
“tone

“And cool harangues, denounc'd eternal hell
“And wrath divine.”——At the dread, shock-
ing thought

My spirit shudders——all my inmost soul
Trembles and shrinks. Sure if th' eternal cries
Of spirits reprobate can reach the ears
Of their dread Judge, they must be cries like
these.

But——if the meanest of the happy choir,
That with eternal symphonies surround
Th' ætherial throne, can stand, and thus de-
clare,

“Next to almighty Grace, that I am here,
“I

"T'owe it to *his* care—His faithful hand
 "(Regardless of the frowns he might incur
 "From me, then madly eager after death)
 "Snatch'd me, reluctant, from approaching
 "flames,
 "Ready to seize and burn unquenchable.
 "May richest Grace reward his pious zeal
 "With some bright mansion in this world of
 "bliss."

"Transporting thought! O, then be blest the
 hand
 "Who form'd my elemental clay to man!
 "And still supports me!—'Tis well worth to
 live,

If I may live to purposes so great! —
 Awake my dormant zeal! for ever flame
 With generous ardours for immortal souls!
 Souls, with CHRIST'S blood, God's dear,
 best jewel, bought.

Rich gem! th' exhausted treasury of heav'n.
 Be mine the bliss that ransom to apply! —
 And may my head, my tongue, my heart, my
 all,

Spend, and be spent, in service so divine.

THE FADING ROSE,

Or SYLVIA instructed.

B Lushing, gay, but prickly Rose,
 Emblem, true, of human woes:
 Emblem too of all the joys
 That our sorrows counterpoise.
 Pierc'd thou stand'st with thorny darts;
 'th the bliss of human hearts.
 Short thy beauty, (deck'd so fine)
 Fully blown; thy sweet's decline.
 Mine's the splendour of an hour,
 Like to thine, sweet fading flow'r!

Man impatient will not stop,
 Thee, but opening, he must crop:
 Canker, insects, storms of hail
 Thy frail body oft assail.
 Foes like these should'st thou escape,
 Time is sure to mar thy shape.
 In full bloom I view'd thee last,
 Now I see thy prime is past;
 Thou who wert so fresh, so gay,
 Ne'er wilt see thy yesterday.
 What to-morrow thou shalt be
 I shall ne'er more prize to see.

From thy fate I'll strive to learn
 What may most my weal concern;
 Youth and beauty will decay,
 Time and death call soon away.
 Charms enduring I will seek,
 Which outvie the blooming cheek.
 Charms, which all internal are;
 Charms, which make old age e'en fair.
 Virtue, like her sister Truth,
 Blossoms in immortal youth.

Bristol, Stokes Croft,
 July 2, 1755.

J. W.

ELEGIAC ODE.

I.

Ascend, my muse, and seek a loftier strain,
 Not all in shrubs and *Tamarisks* delight;
 Sing now the dangers of the fairy train
 That met in mansion-house to pass the night
 In song and dance, and jocund revelry—
 But ah! no earthly joys can ever certain be!

II.

Sing how did there the gay assembly meet;
 Assist me parent of the crooked lyre,
 Like *Hermes* drest with wings at head and feet,
 Assist me, and thy poet's breast inspire;
 For there were lyres and flutes and harp and
 fiddle,
 And some sung toll-de-roll, & some squeak'd
 tweedle diddle.

III.

Some dæmon sure, that luckless evening,
 happ'd
 Fly out o'er *N—b—ry*, to take the air:
 He saw the dancing-room all mopp'd and
 sweet,
 Ods me! quoth he, "What doings have we
 here!"
 This sneaking town attempts to ape the
 court?
 But, trust me, I'll for this time spoil their
 sport.

IV.

So said, so done; at six, that fatal night,
 The west wind blows; who dusk and horror
 brings.
 He veils his face, of darkness and affright,
 While torrents spout from his show'r-drip-
 ping wings;
 What terrors now attend the hapless fair!
 For all the town affords but one poor paul-
 try chair.

V.

But now, post-chaises all the nymphs re-
 quir'd,
 Some from *St. George*, and from our good
 King's Arms;
 But in the town all vehicles are hired—
 Yet females to the ball-room run in swarms.
 The school, that morn, on all machines did
 seize,
 One chaise could well contain seven small
 young *Belles* with ease.

VI.

But think not yet their happiness secure:
 And lend an ear attentive while I sing
 The perils of those maids, who dar'd endure
 The evils rain on brussels-heads might bring;
 (For, not the heaviest rain, with lightning
 join'd,
 Can make one real woman change her mind.)

VII.

Now 'gan the dances, by our *Gallie* foes
 Contriv'd; when, lo! a mighty crash is heard,

U

A

A craggy stone its frightful visage shows,
Huge, rugged, by a strenuous arm upreared;
Slow thro' the air flies the terrific mass,
And strews the room with crumbs of sand
and shiver'd glaſs.

VIII.

The pond'rous rock thund'ring on the floor,
Each nymph, affrighted, seeks a safe retreat,
Some crowd the not enough capacious door,
Some fain would thro' the windows seek the
street.

What rout might engine worſe have wrought
per die,

When one poor ſtone thus makes a troop of
females flee.

Cottenham, Sb—g—n O'R—rk.
May 18.

To a Gentleman, who deſired proper
materials for a MONODY.

F'owrets—wreaths—thy banks along—
Silent eve—th' *accuſom*'d ſong—
Silver ſlipper'd—whilom—lore—
Druid—Paynim—mountain boar—
Dulcet—eremite—*what—time—*
(“Excuse me—here I want a rhyme.”)
Black-brow'd night—Hark! ſcratch-owls
ſing!

Ebon car—and raven wing,
Charnel houſes—lonely dells—
Glimm'ring tapers—difiſmal cells—
Hallow'd haunts—and horrid piles—
Roſeate hues—and ghaffly ſmiles—
Solemn fanes—and cypreſs bow'rs—
Thunder-ſtorms—and tumbling tow'rs—

Let theſe be well together blended—
Dodſley's your man—the poem's ended.
Croydon, Surry.

LOVE in FLAMES.

A SONG.

I.

LET Bards leſs inspir'd their dull talents
employ.

In chaunting old *Dido*, or * *Helen of Troy*;

No herbines ſo ſtale you'll recorded find here,

For I ſing of the lovely Miſs B—ſy La—vi—re.

Wou'd you taſte of the ſweets that bleſt *Ara-*
by yields?

Or breathe in *Amboyna*'s more delicate fields?

Wou'd you taſte of all theſe? with chaſt re-
v'ence repair,

And ſip the ſoft lips of Miſs B—ſy La—vi—re.

II.

Not the tint of the tulip's moſt exquiſite dye,
Not the glow of the roſe, with her bluſhes
may view;

Even the lily itſelf far leſs fair would appear,

If compar'd, with the lovely Miſs B—ſy

La—vi—re.

* Here the Criticks perhaps may laugh, as Helen was not of Troy, but of Greece; but for
this we refer them to Prior's *Apelles*.

Tho' you hid her, ye deities! up in the ſkies,
As an object too glorious for meer mortal
eyes;

On a theft (like *Prometheus*) I'd am'rouſly
dare,

And ſcale your ſteep walls for Miſs B—ſy
La—vi—re.

III.

Or if fate ſtill more envious had nine times
faſt bound her:

With *Phlegethon*, *Styx*, and *Cocytus*, all round
her:

Their Banks I'd (like *Orpheus*) explore with-
out fear,

And bring back my far lovelier Miſs B—ſy
La—vi—re.

What tho' in my coſſers but ſlender's my
hoard,

And but few rich Acres poclaim me their
lord?

Let Fortune grant others their thouſands a
year,

I'm content if ſhe gives me Miſs B—ſy La—
vi—re.

IV.

Or ſhould the old gipſey, more liberal grown,
Make hundreds, and thouſands, ay millions
my own,

I'd lay it down all (hear, a fond lover ſwear)
At the feet of the lovely Miſs B—ſy La—
vi—re.

Then ceaſe your contentions, ye witliags!
nor tell me

Of *Chloe*'s bright eye, or the ſoftneſs of *Elmy*;
Recall your raſh ſtrains, your falſe praises
forbear,

And all chant my more lovely Miſs B—ſy
La—vi—re.

Gubznſ.

CAT's - PAW.

An ancient hiſtorical BALLAD on what beſel
a memorable four-footed matron at H—g—n
Hall in the famous County of B—ks—

To the tune of Heigh Boys up go we.

I.

PUSS, a prime princeſs of the pack,
The lov'lieſt piece of white and black

Of all her purring kind;

Her fur was gloſs'd with ſable jet

And ermine ſnows—Diſaſter yet

May royal beauty find.

II.

'Twas on a Day, ill-fated ſure!

(No day is man or cat ſecure)

She left her guardian's lap:

The rooms wide-wandering, unreſtrain'd,

She chanc'd ('twas ſo the fates ordain'd)

Where ſtood a baited trap.

III.

III.

Of guile-laid cheese, to rob the gin,
Too far she taps her paw within,
Up flew the treach'rous spring:
Mice, that peep'd squinting from their holes,
Cou'd not help shouting, for their souls,
Huzza Boys! save the king!

IV.

Hum-bugg'd and vex'd, you well may think,
Scoff'd *knap-toe* cou'd but sit and blink
In patience, as became her,
Her ruminating mind grew sad;
Disgrace so foul must have drove mad
A cat less wife, tho' tamer.

V.

Her face the cunningly compos'd,
Sat still—look'd prim—as if the dos'd,
The more her shame to smother:
Yet mutt'ring spoke ('tis said she swore)
"Ye dogs, and ev'ry vermin whore,
"I'll mark you—child and mother!"

VI.

Her pangs to quell, as hift'ry faith,
By luck or fate there brought (your faith
For me, on which you will pin)
The mistrefs of the jail-bound beast
Came, and in nick of time releast
The fav'rite of Miss *K-l-p-n*.

VII.

Ah *Puffs!* with cheese no more make free,
(My moral caterwauls to thee;
Thus, lo! in verse it cries out)
"Had these scrub pest'ers of the house
"Hearts, but, or courage of a mouse,
"Zooks! they'd have claw'd thy eyes out."

A TRAP-DAY-ODE,

Set to Musick by Dr. *Castrata Tony Tabby*.
The Vocal Parts (accompanied by *Cat-calls*,
and a Variety of other Wind Musick) by
the Gentlemen *Boars* and Choristers of the
Band Royal in the great *Bazul-room*.

Written in humble Imitation of the incom-
parable and most incomprehensible (that
Prince of Lyric Poets) Mr. *Koley Keber*.

By *Cataline Cat-a-nine Tails*, Esq; at the *Cat*
with *nine Lives*, in *Cat-eat-on Street*, Vo-
lunteer laur—t and late member of the
Kit-Cat Club.

Compos'd in Honour of the joyful and above
recited *Cat—as-trophe*.

AIR. By Signior *Dismallo Scald-Bear*.

JOY to fair *Cæsar!* May a Trap ne'er more
tease her

Whom her Mistrefs in Distress
Did set loose, and please her.

RECIT. By Mr. *Short Whiskers*.

Boar Cats and Shes, that here meet, or a-
sunder busa,
Your Pæans join; loud charg'd as fired Blun-
derbuls.

AIR *piano*. By old Mrs. *Grey-skin* in the Cup-
board.

Mice, thro' your Chinks, view trapp'd Queen
Minx;

—Grin, grin— (Lie close within)
Gaze, stare, hoot, swear,
O! rare!— There! there!
Boo-peep.

CHORUS. Of *skunk Kittens*
Heigh! ho! — Wail and weep.

CHORUS. Of *sucking Mice* in the Closet
Peep Boo — Boo-peep.

DUET. By Mr. *Boar-Roger* and Miss *Priscil-
la Dapple Chops*.

Join Voices all in our great Caterwauling
To sav'd *Cæsarina*, in Music divine—a—
Sing mewling, and purring,
Melodious and fine—a.

AIR. By Master *Bob-Tail Crop-Ears*.

In loyal Noise, harmonious Joys
Tune all to different Keys your Notes;
Cats and Kittens, strain your Throats.
Io Pæan, Cat and Kitten
Sing in Chorus well besitting.

SOLO. By Signiora *Shrill-Pipes*.

Joyful roar — Encore —

CHORUS of Boars.

In gen'ral squall, join all
Now — now —

Dog in the *Village*.

Bough, Wow wow.

GRAND CHORUS of *He-Cats, Shes* and
Kittens.

Pur — pur — Mew — mew.

The AUTHOR on his Birth-Day.

'TIS lo! the day, whence first my life
began,

And now time stamps me with the date of
man:

From helpless infancy, to manhood rais'd;
Be *Tbou* blest source of my existence prais'd.
Raise my full mind thy favour to implore,
With warmth to love, with reverence to
adore,

To fix the anchor of my hope on *thee*,
Tbou rock, *thou* safeguard of my hope and *me*.
Thro' mazy life, conduct my erring youth,
And teach my *soul* thy everlasting truth;
Passion's fierce tide in bounds to rule within,
All wilful folly, and all thoughtless sin;

Of right of wrong to have thy laws imprest :
(Reign Thou, in them, the Monarch of my
breast ;)

To check *intemperance* in it's earliest rise,
Each root of *folly*, and each seed of *vice*.

Of future life, be this my whole request,
Content, in what thy will allots, to rest ;
(Nor proudly high, nor basely low, to fain,)
No raptur'd pleasure, and no poignant
pain,

But the cool medium, which unmixed knows
The glassy surface of a calm repose.

To act in life far better than my fears,
And rise in *wisdom*, as I grow in years ;
To heav'n's high blifs, with ardent zeal aspire
Chearful to live, nor with regret *expire*.

And if reflection to my mind can give
The pride, to wish my memory may live,
'Tis this—He was—(in future be it said)
When living useful, nor less lov'd when dead.

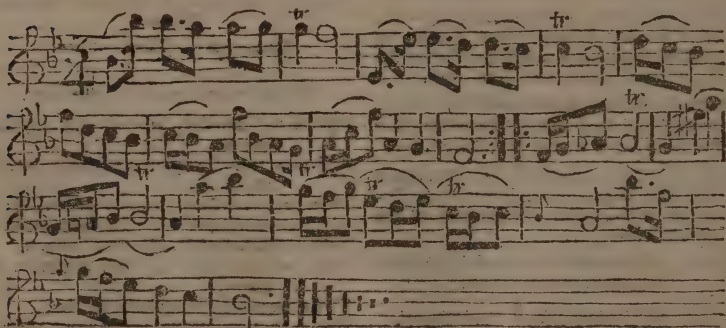
*These Characters are in a Pane of Glass in the
Vicarage-House at Cranbrooke.*



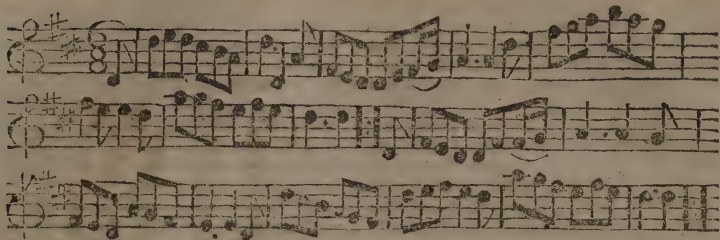
These Characters are taken
from a Brass Plate on a
Tomb-stone in *Cranbrooke*
Church, and are proposed
here for the Antiquarian to
decypher.

The Piece to a Lady on her Passion for Dr. Watts's Logic, the Widow's Verses to Damon, the lighted Pipe, the Parson to his Peruke-maker, with several others received, shall be inserted the very first Opportunity.

A MINUET.



The SWEET CONCLUSION. A Country Dance.



First Co. lead thro' the 2d Co. and cast up — cross over and turn — foot it, and Hands round with the 3d Co. — Right and Left at Top —

A CHRONOLOGICAL MEMOIR of Occurrences.

For *AUGUST* 1755.

Copenhagen.

ON the 13th of July, we had a most terrible Storm, accompanied with Hail and Thunder, which was general almost throughout the Kingdom. In Holstein and Sleswick 13 Houses were consumed by the Lightning, and in several Places the Corn is entirely ruined by the Hail.

From Landshut in Silesia we have such Accounts of a Storm that lately happened there, as are uncommon, especially in that Country; the most peculiar Circumstance is, the gathering of a Whirlwind, which took up a great Quantity of Water, and

bore it up a small Height like a thick black Cloud, and then at last it fell all at once, with incredible violence. The Damage occasioned is very considerable, and the Appearance during the Storm, impossible to be described.

Cracow. On the 23d of July, about 3 in the Afternoon, a dreadful Fire broke out in the Monastery of the Visitation, which in a short Time burnt down 70 Houses and 5 Churches. If the Monastery had not been broke open, both the Nuns and Boarders must have perished in the Flames.

L O N D O N.

THE following Letter on the Success of the British Arms in America, has been published by Authority.

Extract of a Letter from Lieut. Gov. Lawrence to Sir Thomas Robinson. Dated Halifax, June 28, 1755.

“ I have the Honour to acquaint you, that the French Fort at Beaufejour surrendered to Lieut. Col. Monckton the 16th Inst. and the next Day a small Fort upon the River Gasperreau, running into the Bay Verte, where the French had their principal Magazine for supplying the French Inhabitants and Indians. In these Forts were found a great Quantity of Provisions, and Stores of all Kinds, of which Col. Monckton has not yet had Time to transmit me a particular Account. I inclose you the Terms of Capitulation. Notwithstanding the Fort at

Beaufejour had 26 Pieces of Cannon mounted, they surrendered, after four Days Bombardment, before we had even mounted a single Cannon upon our Batteries. Our Loss, upon this Occasion, is very inconsiderable, not above 20 killed, and as many wounded. Major Preble of the Irregulars is slightly wounded in the Shoulder; Ensign Tongue, of Major Gen. Warburton's Regiment, acting as Sub Engineer, received a Shot in his Thigh, as he was taking a Survey of the Ground for the Trenches and Batteries to be raised against the Fort; and Ensign Hay, of Col. Hopson's, who had been taken Prisoner by the Indians, in going alone from our Fort to the Camp, was killed by one of our Shells in the French Fort, which fell through a Sort of Casement, and also killed three French Officers, and wounded two more. — At Col. Monckton's first arrival,

rival, the French had a large Number of Inhabitants and Indians, 450 of which were posted at a Blockhouse, which they had on their Side of the River Massaguash, to defend the Pass of that River: Here they had thrown up a strong Breast-work of Timber for covering their Men, and had Cannon mounted on the Blockhouse. At this Place they made a stand for about an Hour, but were forced by our Troops with some Loss, leaving their Blockhouse, and the Pass of the River, clear for our People, who marched, without further Interruption, to the Ground intended for their Encampment. As we had not Men enough to invest the Fort entirely, several got away; and, when the Fort surrendered, there remained 150 Regulars, and about 300 Inhabitants, several of which, with their Officers, were wounded. We do not yet exactly know the Numbers that were killed in the Fort, but we believe their Loss has not been trifling, as several lay half buried upon the Parade. Col. Monckton has new named the Fort, and called it Fort Cumberland. He gives the Troops, under his Command, great praise for their good Behaviour, and the Spirit and Resolution with which they acted upon this Occasion.—Col. Monckton is proceeding to the Fort at St. John's River, which I flatter myself will give him very little trouble, as their main Strength, which was Beaufejour, is gone: He has likewise my Orders to leave a Garrison in that Fort, as it is infinitely better than ours, as well for Situation, as Strength. The deserted French Inhabitants are delivering up their Arms. I have given him Orders to drive them out of the Country, at all Events; though, if he wants their Assistance in putting the Troops under cover (as the Barracks in the French Fort were demolished) he may first make them do all the Service in their Power. Our Possession of the Isthmus, it is to be hoped, will bring over the Mickmack Indians to our Interest.—I cannot close my Letter to you, Sir, without taking Notice how much I am obliged to Lieut. Col. Monckton's military Skill, and good Conduct, for our Success at Beaufejour; Capt. Rous, who commanded the naval Part of this Expedition, has been of the greatest Service to it, and I have Reason to believe our succeeding so soon, and with so little Loss, is much owing to the good Management of Mr. Brewse, who acted there as chief Engineer."

Terms of Capitulation granted to the Commander and Garrison of Beaufejour.

The Commander, Officers, Staff-Officers, and others, employed for the King and the

Garrison of Beaufejour, shall march out with their Arms and Baggage, Drums beating.—The Garrison shall be sent directly by Sea to Louisbourg, at the Expence of the King of Great Britain.—The Garrison shall be provided with sufficient Provisions for their Passage to Louisbourg.—With regard to the Acadians, as they have been forced to take up Arms on Pain of Death, they shall be pardoned for the Part they have been taking.—Lastly, The Garrison shall not bear Arms in America for the Space of six Months.

The Terms abovementioned are granted upon Condition that the Garrison shall be delivered up to the Troops of the King of Great Britain, at seven o'Clock this Afternoon. June 16, 1755.

The Fort at Beaufejour (in English the Fair Residence) taken from the French, as also that of Bay Verte, were both built by them since the Peace of Aix la Chapelle. These Forts stand about twelve Miles asunder, on both Sides of the Isthmus of Nova Scotia; Beaufejour, in the Bottom of the Bay of Fundy, and Bay Verte, in the South-west Side of the Peninsula. From these Forts the French have furnished the Cape Sable or Mickmac, and the Island of St. John Indians, who make 300 fighting Men, with Arms, Provision, and Cloathing. With these Indians the French have constantly harassed our Infant Colony of Nova Scotia, and reduced it frequently to great Distress, by carrying off the English, and scalping Numbers, and by destroying their Plantations. One Night these Indians, with disguised French, surprized the Village of Dartmouth, burnt the Houses, and put all the Inhabitants to Death. When the French had built the above Forts, they threatened to destroy all the French Subjects of England, if they did not retreat behind these Forts, which obliged them to destroy their Settlements, and put themselves under their Protection. These are the People called Acadians in the Treaty of Capitulation; and they became the Subjects of Great Britain, when Nova Scotia was reduced in 1710. There are about ten or fifteen Thousand of these French Neutrals, as they are called in the Province. But by the Success of his Majesty's Arms in reducing these Places, these People who were lately turned dangerous Enemies, will be reduced to become Subjects of the Crown of England. The Infant Colony of Nova Scotia, by keeping Possession of these Forts, will be preserved from the Depredation of these Indians; and when the Fort at St. John's River is subdued, all the Province of Nova Scotia will be reduced, and brought under our Subjection.

We hear that there are now a float on the Lake Ontario two *British* Ships of War mounted with Brass Cannon, which were built at *Deptford*, and carried over in Frames, so as to be put together immediately when Occasion offered. If this be true, it will effectually cut off all Communication between *Canada* and *Luisiana*, and consequently curb at once all the ambitious Designs of our Enemies on that Side.

July 24. The Admirals Hawke and West failed from Spithead with 18 Ships of the Line, on a secret Expedition.

Aug. 1. As some Labourers were digging a Foundation for a Meeting-house in Redcross-street, they found some ancient Pieces of Gold to the Value of 70 l.

A Baronet's Son, said to have killed a Man at Brentford, was tried at Chelmsford, when after a long Trial, several Circumstances appearing in his Favour, the Jury brought in their Verdict, special.

6. This Day a Survey was made of all the Ships in the River fit to be employ'd in the Service of the Government as Frigates of War, and a Report has been made of them to the Commissioners of the Navy.

8. The Commissioners of the Navy contracted with several Merchants for 24 Ships, of about 400 Tons each, and 12 large Colliers, for the immediate Service of the Government.

There was this Day a smart Prefr for Seamen, in the Out-parts of the City.

By Order of the Lords of the Admiralty, twelve Frigates and Sloops have been lately built in private Yards.

12. The Parliament was prorogued to Tuesday September 2.

The Rt. Worshipful Sir Robt. Ladbroke, by Virtue of a *Locum Tenens* from the Right Hon. the Lord Mayor, went in the State-coach to the Quest-room in Trinity-court, Aldersgate-Street, and held a Ward-mote; when Geo. Nelson, Esq; Deputy of Queen-hith Ward, was unanimously elected Alderman, in the Room of the late William Benn, Esq;

The Rt. Hon. the Lord Anson and several of the Admiralty have been to Woolwich, to see a Proof of some new-invented Guns that are but half the ordinary Weight, and yet will do as much Execution.

15. A Letter was sent to the Master of Lloyd's Coffee-house, from the Admiralty Office, desiring that the Merchants might be inform'd, that several of his Majesty's Ships would soon be sent from Spithead to the Mediterranean and the West Indies; and those Merchants who were desirous of having their Ships proceed in Company with the Men of War, were desired to give Or-

ders for their Ships to rendezvous at Spithead as-foon as possible.

Upwards of 40 Deserters arrived in Town from *France*, who say that many more are upon the Road.

Joseph Wright and Thomas Grimes were executed at Coventry for the detestable Sin of Sodomy; Wright confessed that he had been guilty of the Crime for which he suffered, but never with Grimes; and Grimes absolutely denied his ever being Guilty of it at all, either with Wright, or any other Person.

18. Col. Yorke, the English Minister at the Hague, has given Orders that no Packet-Boat from Harwich to Helvoetsluys, or from Helvoetsluys to Harwich shall for the Future carry any Money, lest the French Privateers might be tempted to attack them.

19. This Morning arrived here from Hanover, one of his Majesty's Messengers, with Orders for the Departure of the Yachts to Helvoetsluys.

20. An Express was sent to Ld. Delawar, at his Seat at Bolderwood, in Hants, desiring his Attendance to go on Board the Yacht to accompany his Majesty from Hanover.

By Letters from Charles Town South Carolina, we are informed, that they have shipped in the last Year, ending in April, 200,000 lb. of Indico to England. So much has the Production of that Commodity been increased in that Province, by allowing a small Bounty here on its Importation.

The Rt. Hon. the Lords of the Admiralty have sent a second Letter to the Master of Lloyd's Coffee-house, desiring him to acquaint the Merchants, that any of their Ships bound to Lisbon, Oporto, St. Lucar, or Cadiz, may have Convoy, by repairing to Spithead.

21. Orders were sent to the Excise Office to send Expresses to all the Offices Northward, to stop and send under a Guard to London a Person who landed at Harwich, and lay at Malden on Sunday Night last; and also to seize his Baggage, and all in Company with him.

There are Letters from Boston in New England, dated the 18th of July, by which it appears that the French have abandoned St. John's Fort in Fundy, after nailing up the Cannon, for Want of Leisure or Conve-niency to carry them off.

22. Came on again the Election of a Sheriff for this City and County of Middlesex, when Mr. Alderman Beckford was by a great Majority of Hands declared duly elected.

A most valuable Work of Antiquity has been lately discovered at Bath. Under the Foun-

Foundation of the Abbey-house now taking down, in order to be rebuilt by the Duke of Kingston, the Workmen discovered the Foundations of more ancient Buildings, and fell upon some Cavities, which gradually led to further Discoveries. There are now fairly laid open the Foundations, and Remains of very august Roman Baths, and Sudatories, constructed upon elegant Plans, with Floors suspended upon Square-Brick Pillars, and surrounded with tubulated Bricks, for the equal Conveyance of Heat and Vapour. Their Dimensions are very large, but not yet fully laid open, and some curious Parts of their Structure are not yet explained. It were to be wish'd that Gentlemen curious in Antiquities, and well vers'd in the Nature and Structure of Roman Baths, would take a View of the Spot, in order to complete the Explication of the whole Design, towards which many Data already appear, which may not only afford an entertaining Speculation, but lead us to very useful Improvements of our own Baths, since it certainly appears, that the Roman Soldiers, tho' in so remote a Station, entertained higher Ideas of Convenience, Elegance and Uses of Baths, than the settled and opulent Inhabitants of Britain have yet proposed to themselves.

We should be greatly obliged to any Gentleman on the Spot who would favour us with a more particular Account of this Discovery.

Whitehall, August 26, 1755. By his Majesty's Ship the Sea-horse, from Virginia, Advice has been received, that Major General Braddock, having advanced with 2000 Men, and all the Stores and Provisions, to the Little Meadows (about 20 Miles beyond Fort Cumberland at Will's Creek) found it necessary to leave the greatest Part of his Waggon, &c. at that Place, under the Command of Col. Dunbar, with a Detachment of 800 Men, ordering him to follow as fast as the Nature of the Service would admit. The General having, by this Means, lessened his Line of March, proceeded with great Expedition, his Corps then consisting of about 1200 Men, and 10 Pieces of Artillery, together with the necessary Ammunition, Stores, and Provisions. The 8th of July, he encamped within 10 Miles of Fort Duquesne; and, on the 9th, on his March through the Woods of French and Indians, who made a sudden Fire from the Woods, which put the Troops into great Confusion, and occasioned their retiring with great Precipitation, notwithstanding all the Endeavours of the General, and the Officers, many of whom were killed, while they were using all possible Means

to rally the Men. The General, who exerted himself as much as Man could do, after having five Horses killed under him, was shot through the Arm, and the Lungs, of which he died the fourth Day. It is reckoned, that there were about 200 killed, and 400 wounded; the latter are mostly collected at Will's Creek, to which Place Colonel Dunbar, with the Remainder of the Troops, was retired; from whom a more particular Account is expected.

A List of the Officers killed and wounded.

STAFF. Maj. Gen. Braddock, died of his Wounds; Robert Orme and Roger Morris, Esqrs. Aids de Camp, wounded; William Shirley, Esq; Secretary, killed; Sir John t. Clair, Deputy Quarter-Master General, and Matthew Lefley, Gent. Assistant to the Quarter-Master General, wounded.

Late Sir Peter Halket's Regiment.

Sir Peter Halket, Col. killed; Lieut. Col. Gage, wounded; Capt. Tatton and Capt. Gethins killed.

Subalterns. Liettenants, Littleler, Dunbar, Treeby, Simpson, and Lock, wounded; Lieutenants, Halket and Allen killed; Diney, Kenedy, Townsend, Nartlow, and Pennington wounded.

Colonel Dunbar's Regiment. Lieut. Col. Burton, Maj. Sparks, Captains Bowyer and Ross, wounded; Capt. Cholmley killed.

Subalterns. Barbut, Walsham, Glandwin, Edmeston, Montrefeur, Maemullen, Crow, and Sterling, wounded; Crimble, Wideman, Hanford, Brereton, and Hart, killed.

Artillery. Capt. Lieut. Smith, killed; Lieutenants, Buckhanon, M'Cloud, and M'Culler, wounded.

Engineers. Peter M'Keller, Robert Gordon, and — Williamfon, Esqrs. wounded.

Detachment of Sailors. Lieut. Spendelow, and Mr. Talbot, Midshipman, killed.

Capt. Stone, of Gen. Lascelles's Regiment, killed.

Capt. Floyer, of Gen. Warburton's Regiment, wounded.

Independant Companies of New York.

Capt. Gates, wounded; Lieut. Sumain, killed; Lieutenants, Howarth and Gray, of Capt. Demercie's Independent Company, wounded.

Virginia Troops. Captains, Poulston and Peronie, killed; and Captain Stephens, wounded.

Subalterns. Hamilton, Wright, Splitdorff, and Wagoner, killed; and Stuart wounded.

BIRTHS.

Aug. 1. The Countess de Valde Sotto delivered of a Daughter.

2. The Hon. Lady Katherine Stanhope, Lady of Edwin Francis Stanhope—of a Daughter.

MARRIAGES.

July 10. John Bullock, Esq; Bailiff of the Town of Brecon, to Miss Lloyd, a Lady of 15,000l. Fortune.

July 20. Rt. Hon. the Earl of Antrim, married to the Relict of James Taylor, Esq;

31. Rt. Hon. the Earl of Morton, one of the sixteen Peers of Scotland,—to the Daughter of Sir John Heathcote, Bart.

Aug. 8. Wm. Shaw, Esq; lately arrived from Jamaica—to Miss Matthews of Hatton Garden.

DEATHS.

July 23. Rt. Hon. the Countess, Lady of the E. of Dysert, eldest Daughter of the E. of Granville.

31. Sir Rob. Grosvenor, of Eaton-Hall, Member of Parliament for the City of Chester.

Aug. 1. Rt. Hon. W. Fielding, Earl of Hapsburg, Lauffenburg, Riburg, and Rhin-felden in Germany; E. of Denbigh, Viscount Fielding.

Rt. Hon. the Ld. Dalmeny, Son and Heir to the E. of Roseberry.

Step. Downes, Esq; many Years Register for the County of Middlesex, and Clerk of the Inrollments in the Court of Chancery.

Peter Harding, a Farmer near Corke, in Ireland, aged 113, he retained his Memory to the last.

4. Rt. Hon. the Lady Charlotte Levingston, Countess of Newburgh in Scotland; a Peeress in her own Right.

Wm. Chetwynd, Esq; the last Heir Male of the Chetwynds of Grindon in Warwickshire.

Lieut. Col. Abbot, of the Life-guards, at the Hot-well at Bristol.

9. Wm. Hoskins, Esq; at Croydon; by whose Death a large Estate comes to John Ward, Esq; of Squerries in Kent, who married his only Daughter.

10. Rt. Hon. Sir William Yonge, Bart. L. L. D. F. R. S. one of his Majesty most Hon. Privy Council, Knt. of the Bath, and Member of Parliament for Tiverton.

10. William Benn, Esq; Alderman of Aldersgate Ward.

Francis Nixon, Esq; Lieut. Col. of the Yellow Regiment of Trained Bands of this City, and one of his Majesty's Justices of the Peace for Westminster; suddenly in his Chair.

The Rev. Mr. Jocelyn Percy, M. A. Rector of Marham, near Peterborough, of an Apoplectic Fit, as he was at Supper. He was thought to be the right Heir Male to the antient Earls of Northumberland; but being descended from Thomas who was attainted for being concerned in the Powder

Plot, all Pretensions to either Title or Estate were forfeited.

12. Mr. J. B. Ozinde, many Years a Teacher of the French Language, and the Author of several useful Treatises relating thereto.

Tho. Porter, Esq; a Gentleman of a good Estate in Nottinghamshire, at the Hot-wells, Bristol.

Ralph Lutton, Esq; at his Seat at Knapton, in Yorkshire.

Mr. Carlisle Spedding, principal Engineer to Sir Wm. Lowther, by an Explosion of foul Air in a Coal Mine.

15. Sir John Jenoure, Bart. Capt. in his Majesty's 2d Troop of Horse Grenadier Guards.

16. The Rev. Mr. James Read, a dissenting Minister of this City, in the 72d Year of his Age.

Mr. John Stubbs, Clerk of Bristol Road, in the General Post-Office.

20. Wm. Swinburn, Esq; an eminent Counsellor at law.

His Grace the Duke of Roxburgh, at Bath.

Civil and Military Preferments.

Hon. Lord George Hay, Brother to the Marquis of Tweedale, appointed a Gentleman of the Police.

Ld. Delawar—Governor of Guernsey.

Stephen Hopkins, Esq;—Governor of Rhode Island.

Capt. Franklin—Commodore.

Capt. Kirke—of the Lynnh.

Capt. Fowke—Commander of the Tilbury.

Capt. Graves—of the Sheerness.

Capt. Craven—of the Princess Mary.

Capt. Knowler—of the Louisa.

Capt. Cornish—of the Stirling Castle.

Capt. Wickham—of the Dreadnought.

Capt. Evans—of the Prince Edward.

Capt. Lloyd—of the Chesterfield.

Capt. Henry Angel—of the Swallow.

Capt. Young—of the Newark.

Capt. Rodrick—of the Hampton-court.

Capt. Frankland—of the Winchester.

Marquis of Blandford, Son to his Grace the D. of Marlborough—an Ensign in the 2d Regiment of Foot Guards.

Hon. Henry Monson, L.L.D.—Reader of Institutes of the Civil Law in the University of Cambridge. (Void by the Death of Mr. Dickens.)

The Hon. Capt. John West, of the third Regiment of Foot—Col. of the first Troop of Horse Guards.

William Earle, Esq;—Deputy Commissioner of the Musters in South Britain.

Bill of Mortality from July 22. to Aug. 24.

Buried		Chriftened	
Males	719 $\frac{3}{4}$	Males	547 $\frac{7}{8}$
Females	691 $\frac{1}{4}$	Females	544 $\frac{1}{2}$
Under 2 years old	589	Buried,	
Between 2 and 5	138	Within the walls	114
5 and 10	44	Without	309
10 and 20	43	Mid. and Surry	693
20 and 30	93	City & Sub. West.	294
30 and 40	125		
40 and 50	130		1410
50 and 60	100		
60 and 70	60	Weekly July 29.	326
70 and 80	62	Aug. 5.	275
80 and 90	23		12. 392
90 and 100	3		19. 417
100 and 109	0		1410
			1410

Observat. on the Weather, at Temple Bar.

	Baro- meter.	Therm.	Pluvia- meter.	Hygro- meter.
July 25	19 : 8 $\frac{3}{4}$	29	8 : 1	31 Moist.
26	29 : 6 $\frac{1}{2}$	28 $\frac{1}{2}$	8 : 6	32
27	29 : 7 $\frac{1}{4}$	28 $\frac{3}{4}$	14 : 2	34
28	30 : :	30	1 : 3	17
29	29 : 8	30 $\frac{3}{4}$	0 : 0	43
30	29 : 9	30	0 : 0	67 Dry.
31	29 : 9 $\frac{3}{4}$	30	0 : 0	19
Aug. 1	29 : 9 $\frac{1}{2}$	30 $\frac{1}{2}$	0 : 0	30 M.
2	29 : 7 $\frac{3}{4}$	31	11 : 5	70
3	29 : 4	30	54 : :	90
4	29 : 4	27 $\frac{1}{2}$	51 : 6	81
5	29 : 7	28 $\frac{1}{2}$	0 : 5	80 : 3
6	29 : 9 $\frac{1}{2}$	28 $\frac{1}{2}$	0 : 0	80 : 7
7	30 : 0	29 $\frac{1}{2}$	0 : 0	80 : 3
8	30 : 2	28 $\frac{1}{2}$	0 : 2	70 : 6
9	30 : 1	29 $\frac{1}{4}$	0 : 0	67
10	30 : 1 $\frac{1}{2}$	30 $\frac{1}{2}$	0 : 0	72
11	30 : 1 $\frac{3}{4}$	30 $\frac{3}{4}$	0 : 0	9
12	30 : :	31	0 : 0	43
13	29 : 9	30	1 : 2	81
14	29 : 8 $\frac{1}{4}$	30 $\frac{3}{4}$	0 : 8	76
15	29 : 8	31	0 : 0	58
16	29 : 8	31	16 : 4	90
17	30 : :	31 $\frac{1}{4}$	2 : 0	58
18	30 : :	30	0 : 0	84
19	29 : 7	30 $\frac{3}{4}$	21 : 3	90
20	29 : 9	30 $\frac{1}{4}$	5 : 8	58
21	29 : 8	32	1 : 9	79
22	29 : 8 $\frac{1}{2}$	31 $\frac{1}{2}$	0 : 0	27
23	29 : 8 $\frac{1}{4}$	29	3 : 3	30
24	29 : 8	30	0 : 0	60
25	29 : 9 $\frac{1}{2}$	28 $\frac{3}{4}$	8 : 2	82

B—KR—TS.

- Aug. 2. Elizabeth Knowles, of St. Saviour Southwark, Spanish Leather-dresser.
Rich. Watson, of St. Giles, Sugar-refiner.
5. Will. Hart, late of Bunhill-Row, Grocer.
Sam. Adlam, of Crockerton, Wilts, Fuller.
George Graham, of Taunton, Somersetshire, Mercer.
9. John Ferguson, of St. Botolph without Aldgate, Victualler.
John James, of Knutsford in Cheshire, Currier.
John Dunlop, late of Rotterdam, but now of London, Merchant, Copartner with Rt. Dunlop, late of Rotterdam, Merch.
James Bond, of St. Clement Danes, Victualler.
Benjamin Hickey, of Bristol, Bookseller.
12. Levy Frederick, of Duke's Place, Chapman.
16. Sarah Oake, of Cheapside, Milliner.
Richard Sharp, of Friday-street, Victualler.

COURSE of EXCHANGE.

London, July 22, 1755.

Amsterdam, ———	36	5
Ditto at Sight, ———	36	3
Rotterdam, ———	36	6 $\frac{2}{2}$ Uf.
Antwerp, ———	no	Price
Hamburgh, ———	34	10 $\frac{2}{2}$ Uf.
Paris, 1 Day's Date, ———	31	$\frac{1}{16}$
Ditto, 2 Ufance, ———	30	$\frac{1}{16}$
Bourdeaux Ditto, ———	30	$\frac{1}{16}$
Cadiz, ———	38	$\frac{5}{8}$
Madrid, ———	38	$\frac{5}{8}$
Bilboa, ———	38	$\frac{5}{8}$
Leghorn, ———	47	$\frac{5}{8}$
Naples, ———	no	Price
Genoua, ———	47	$\frac{3}{4}$ a $\frac{1}{4}$
Venice, ———	49	$\frac{1}{2}$
Lisbon, ———	5s.	4d. $\frac{7}{8}$
Porto, ———	5s.	3d. $\frac{3}{4}$
Dublin, ———	7	$\frac{3}{4}$ a 8

BOOKS published since our last.

Alcaſtor to *Sophronius*; an Epistle. 6d.
Cooper.—The Design of this Epistle is to ſhew the Abſurdity of pretending perfectly to inveſtigate the Purpoſes infinite Wiſdom.

Authentic Memoirs of the Life and ſurprizing Exploits of *Mandrin*, Captain General of the French Smuglers. 1s.—A Piece collected from the News Papers.

On the Benefit which the Holy Spirit of God is of to Man in his Journey thro' Life. A Sermon preached at Chriſt-church, *Newgate-ſtreet*, by *William Romain*, 6d. Withers.

The

The Complete Letter-Writer: or, New and Polite *English* Secretary. 2s. Crowder and Woodgate.

The Christian's Memorandum Book, or Family Instructor.— This Work consists of devotional Exercises for every Sunday, and all other solemn Feasts and Fasts throughout the Year; collected from the Writings of the most celebrated *English* Divines. 2s. 6d. Crowder.

The Christian's full Assurance of Hope. A Sermon on Occasion of the Death of the Rev. Mr. Rob. Cornthwaite. By Daniel Noble. 6d. Noone.

The Causes of Impenitence considered. A Sermon preached at Harburg in Warwickshire, May 4, 1755, on Occasion of a Conversation said to have passed between one of the Inhabitants and an Apparition, in the Church-yard belonging to that Place. By Richard Fogs, M. A. 6d. Baldwin.

The Destruction of the French foretold by Ezekiel, or a Commentary on the 35th Chapter of that Prophet. Intended as a Specimen of Mr. Romaine's Manner of interpreting Scripture. 1s. Cooper.— This is a grave Irony, intended to expose the Absurdity of giving a Loose to the Imagination, and laying aside the Use of Reason in interpreting Scripture.

Description abrégée des Possessions Angloises & Françoises du Continent Septentrional de l'Amérique, pour servir d'Explication à la Carte publiée sous ce même Titre. Par J. Palairé. 1s. Nourse.— This is a concise and plain Description of all the *British* Settlements in North America, including Nova Scotia, New England, New York, New Jersey, Pennsylvania, Maryland, Virginia, Carolina, Georgia, &c.

An Essay on the Prophecies of the New Testament, which relate to the Destruction of Jerusalem and the Dispersion of the Jews; to the Fall of Rome and the Roman Empire; and to the Millennium; together with some Observation on the State of CHRIST's Church here on Earth, after the Millennium. By Jo. Greenhill, A. M. 1s. 6d. Crowder.

An Essay on the Dropsy and its different Species. By Donald Monro, M. D. 1s. 6d. Wilson and Durham.

An Epistle to the Rev. Mr. J. Wesley. By Charles Wesley. 3d. Robinson.

Female Taste: A Satire, in two Epistles, inscribed to a modern polite Lady. By a Barrister of the Middle Temple. 1s. Crowder and Woodgate.— This is a very severe Satire on the Vices and Follies in Fashion.

A Fragment, faithfully translated from an ancient Manuscript lately found at Herculaneum. 6d. Bladon.— This short Piece is intended to depreciate the *Mosaic* Account of the Creation.

An Hymn, to Miss Laurence in the Pump Room at Bath. 6d. Doddsley.

An Introduction to the *Italian* Language, containing Specimens in Prose and Verse, selected from the best Authors in that Language, with a literal Translation and grammatical Notes. By Giuseppe Baretti. 6s. Millar.

The Methods of promoting Edification by public Institutions; an Ordination Sermon. By James Fordyce. 6d. Wilson and Durham.— This Author's Name will be a sufficient Recommendation of this Sermon to all who have the Happiness of being acquainted with his other Works.

National Prosperity the joint Product of just Government and dutiful Subjection.— A Sermon preached at St. Mary's, Oxford, June 22. By W. Sharpe, D. D. 6d. Rivington.

The Necessity of the Spirit's Help in Prayer. By J. Stephens. 6d. Keith.

A Parallel between the Power of a King of England, and that of a Stadtholder of the United Provinces, in 1751. Written by a Person of Distinction in Holland. In French and English. 1s. 6d. Doddsley.— This Work contains several good Observations relating to the Original Constitution and Dignity of the Office of a Stadtholder.

Poems by eminent Ladies. 2 Vols. 6s. Baldwin.

Present State of North America, Part I. 2s. Doddsley.

Reflections on the ancient Alphabet and Language of Palmyra. From the French of the Abbé Barthelemy. 2s. 6d. Millar.

The Student and Pastor. By J. Mason, M. A. 2s. 6d. Noone.— This Work consists of Precepts for studying, composing, reading and preaching Sermons.

A Sketch of Lord Bolingbroke's Philosophy. By Ralph Heathcote, A. M. 1s. 6d. Payne.— The Author who writes both in a genteel and sensible Manner, confines his Remarks chiefly to what his Lordship has advanced on the moral Attributes of the Deity, a future State of Rewards and Punishments, and the Dispensations of Providence.

State Poems, relative to former and future Times, especially the present critical Conjecture. 6d. Cooper.

A new Theory of Human Nature, with a correspondent System of Education. By Counsellor Baumgarten. Translated from the German. 3s. Linde.

Second Thoughts concerning War, addressed to the People called Quakers, 1s. 6d. Cooper.

The young Gentleman instructed in the Christian Religion; in three Dialogues between a young Man and his Tutor. Needham.

EACH DAY's Price of STOCKS, in AUGUST 1755.

B Books shut, is signified thus,

Bank	India	Sea old S.	Sea old S.	Sea An.	S. Sea An.	2d Subc.	3d Ba. An.	3d Ba. An.	3d per Cent	3d per Cent	3d per Cent	India Bon.	B. Cir. per	Lot.	Tick
23	122	165 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	23
24	123	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	24
25	123a12 3/4	Do.	Do.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	25
26	122 1/2	Do.	Do.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	26
28	122 1/2	166 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	28
29	122 1/2	167 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	29
30	122 1/2	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	30
31	123 1/2	Do.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	31
1	123 1/2	168	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	1
2	No Price.	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	2
4	No Price.	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	4
5	123 1/2	Do.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	5
6	123 1/2	Do.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	6
7	Do.	Do.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	7
8	123 1/2	167 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	8
9	No Price.	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	9
11	122 1/2	166 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	11
12	No Price.	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	12
13	No Price.	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	13
14	123.	167	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	14
15	Do.	166 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	15
16	No Price.	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	16
18	123	166 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	18
19	122 1/2	167	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	19
20	122 1/2	166 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	20
21	No Price.	166 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	21
22	122 1/2	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	22
23	No Price.	No Price.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	23
25	Do.	Do.	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	25
26	122 1/2	166 1/2	No Price.	94 1/2	No Price.	92 1/2	93 1/2	91 1/2	91 1/2	No Price.	90 7/8	22s a 27	3 76a10s	9 12 0	26
W. Pec. Load 19d															
Prices Corn.															
Mark-Lane.															
Wheat 23s to 24s qr.															
Barley 13s to 13s 6d															
Oats 9s to 11s od															
Beans 16s to 17s od															
Bainbridge.															
Wheat 23s to 24s qr.															
Barley 13s to 13s 6d															
Oats 9s to 11s od															
Beans 16s to 17s od															
Reading.															
Wheat 23s to 24s qr.															
Barley 13s to 13s 6d															
Oats 9s to 11s od															
Beans 16s to 17s od															
Farnham.															
Wheat 23s to 24s qr.															
Barley 13s to 13s 6d															
Oats 9s to 11s od															
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Hentley.															
Wheat 23s to 24s qr.															
Barley 13s to 13s 6d															
Oats 9s to 11s od															
Beans 16s to 17s od															
Guildford.															
Wheat 23s to 24s qr.															
Barley 13s to 13s 6d															
Oats 9s to 11s od															
Beans 16s to 17s od															
Warminster.															
Wheat 23s to 24s qr.															
Barley 13s to 13s 6d															
Oats 9s to 11s od															
Beans 16s to 17s od															
Devizes.															
Wheat 23s to 24s qr.															
Barley 13s to 13s 6d															
Oats 9s to 11s od															
Beans 16s to 17s od															
Gloucester.															
Wheat 23s to 24s qr.															
Barley 13s to 13s 6d															
Oats 9s to 11s od															
Beans 16s to 17s od															

Miscellaneous Correspondence, in Prose and Verse.

For *SEPTEMBER*, 1755.

Sir, By inserting the following, you will oblige many of your Readers:

The TEMPLE of DEISM. *A* VISION.

Dark Night instructs, nor are vain Dreams in vain. NIGHT THOUGHTS.

THE other night being retir'd from the toil of the day, I amused myself 'till bed-time in perusing *Leland's View of Deistical Writers*. After my candle was extinguished I reflected for some time on what I read, till sleep came upon me; when the subject of my waking thoughts impressed itself so strongly, that it employed my fancy for the remainder of the night in the following dream.

Methought I beheld a female in a white robe, with an olive branch in her hand: a sun was embroidered in the middle of her bosom, which emitted a radiance that strengthened, not dazzled the eyes of the beholder. With an air that expressed majesty and affection, she pointed to a temple that stood at some distance. As soon as I descried it, I felt none of the tumults of curiosity working in my breast, but reading in her eyes that it was her desire, that I should examine its inside, I went towards it. As I approached I observed that the avenues were declining, and that they were bespread with roses, and perfumed with fragrance, which rendered the way not only easy but agreeable. The first thing I observed on my entrance was, that though the sun seemed then in its meridian, they had excluded its splendors, and erected a dim rush-light taper, in the most conspicuous part of the building, over which was wrote in golden characters, *THE SUN*. As I turned myself round to view the various parts of the edifice, I could perceive a great many persons employed about the windows in stopping up every crack, for fear the *light of heaven* should by any means steal in and eclipse the splendor of the taper. Having for some time given a loose to my astonishment at so odd a circumstance, I applied myself to take a more particular view of every thing that might seem worthy of my notice. I then turned my eyes westward towards the taper and could then perceive a throne, on which was seated the ge-

nius of the place. He appeared of no despicable form: age had not made any furrows in his countenance, nor had care much wrinkled his brow. He was clad in a robe of the same colour with that of my guide, which was furnished by *AFFECTATION*, who sat at his right hand: his crown lay on a cushion on his left, which was guarded by *VANITY*, and behind stood *SINGULARITY* in the quality of his train bearer. As I cast my eyes further downwards I observed a great many more of his retinue, whose names I could not then discover: amongst those that I knew, was *PEDANTRY* in the robes of *LEARNING*, *WIT* in the garb of *JUDGMENT*, and *DOGMATISM* in the clothes of *REASON*. I was going to enquire of my guide the name of the personage, who was thus attended, when I accidentally cast my eye on a label, that was over the throne, and inscribed *DEISM*. As this whetted my curiosity, I was now resolved to examine more minutely every thing within the edifice, and applied myself first to the pictures, with which the walls were quite covered. The pieces seemed at the first glance to be performed in a masterly manner, and by the glare of the colours and splendor of the frames, invited and dazzled the sight at the same time. On a nearer inspection, you cannot conceive how great was my disappointment: for what, at a distance seemed to vindicate the pencil of a *Titian*, when I came closer, appeared beneath the touch of the meanest *Flemish* dauber. It would be tedious, if not impossible, to recount the subject of every piece, let it suffice to mention the most striking only. The first piece that intruded itself on my sight, was of the historical kind, and represented the depravity of the christians in the fifth century. It was indeed very much laboured, disgusted the spectator by too great a shew of art, was in some places void of proportion, and had its

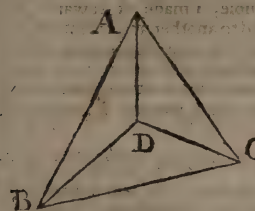
capital images bigger than life. Next this hung a piece of no mean kind; this was a full length of *Julian*: but I could discover very few features of the apostate, nor indeed should I ever have known it had been intended for him, had it not been for the fragment of an epistle, which was subscribed with his name, and laid on a table near him. The face expressed so much humanity, openness of heart and benevolence, that it would have passed better for the picture of the christian bishop he ordered to be murdered, than for the emperor himself. Below this hung a piece of *Christ*, riding on an ass, crowned with thorns, and holding a reed in his hand; he was surrounded with a crowd, whose countenances betrayed the greatest degree of admiration, joined with the most profound stupidity. On the side of it was *Mohammed* adorned with all the regalia of eastern pomp, surrounded by a troop of *Janizaries*, holding a *Koran* in his left hand, and a drawn sabre in his right. I perceiv'd that the painter had endeavoured to describe some features in the countenances of these personages so nearly alike, that they might have appeared to ignorant and indolent spectators to belong to the same family. Above this hung another piece, that gave me no less disgust, it was *SUPERSTITION* with her left hand bathed in blood, in her right she held an host, her eyes were fixed on a crucifix, *BIGOTRY* supported her tottering steps, *VIOLENCE* poured out bags of gold at her feet, and *IGNORANCE* was burning incense to her: over her head was wrote in capitals, *CHRISTIANITY*. The sight of this was so painful that I turned from it very abruptly: and looking the genius in the face, observed him eying the two last pieces with a singular satisfaction, and a joyous triumph. As several bronzes and statues were dispersed round the room, I thought them not unworthy my attention. On the right hand of the throne was the statue of *SCEPTICISM*, devouring its own offspring. Near this was *MODESTY* very much mutilated. Opposite to this, was a kind of a Colossus, cast in brass, of an excellent workmanship, it was *PRIDE* trampling under his feet *KNOWLEDGE*, and *INSPIRATION*, who were at the same time casting the most affectionate regards of pity on him. At a little distance I thought I perceived a copy of the two famous Gladiators, but on a nearer inspection, found they were two apostles, *St. Paul* and *Peter* carved in that attitude, by a Librarian, and by him presented privately to the genius. On the fourth

side of the fabric I perceived a door open, and by the desire of my guide, who was all this time invisible, I made up towards it, and found it led to another apartment which I was informed was called the school. Here all the disciples were initiated in the principles of the genius; the master of the school, who discovered great warmth in his countenance, was named *PREJUDICE*, he was the only Son of *PASSION* and *INCONSIDERATENESS*, and in his features resembled both his parents. He held in his hands a quarto volume very pompously printed and bound, which was a compilation of all the most celebrated pieces that were wrote in vindication of the rights of the Genius: the noble author, who had left it as a legacy for the use of the school, had his statue erected in the middle, with this remarkable motto, *GREATER AND BETTER*. At that time I must confess, that I was at a loss to affix any Idea to the words, but now recollect I have met with the same inscription on a monument in *Battersea* church, which is equally unintelligible. The binding was of massy gold, which was neither cast, nor chased, but formed into its present dimensions by a *Mallet*. The smith, like other artizans, had like to have suffered for his ingenuity. I went out of this room into an area, where I perceived a number of people employed in building the temple of *VIRTUE*: the director of the works was a person of no mean character, every thing that could contribute to embellish and adorn was lavished on the edifice; fitness, beauty, harmony and proportion appeared throughout the whole: but I perceived the structure built upon a sandy Foundation, tottering with every tumultuous blast, and tumbling at the impulse of every storm. My guide, who now discovered herself, offered her counsel to the workers, and advised them to run up a buttress or two, which might add strength and would support the whole structure for ages; and at the same time recommended *RELIGION*, as one who had built many a temple of that sort, which had stood, and would still stand, without repair, for ever. Her advice, which seemed to me judicious, they looked on as ridiculous, and proceeded in their works on their first plan: but while they were employed in measuring the proportion of a column, a sudden gust arose, and swept away the whole building. The surprize I felt at so strange an occurrence, awoke me, and left me at liberty to commit my vision to paper.

W. RIDER.

MATHEMATICAL

The following is Mr. BEVIL's Explanation of his Conclusion in Answer to Question the 15th. See MAG. for May, P. 72.



" If $z = nx$, $y = mx$, and $x = py$, by expunging x and y , we have $AD = x$, $B = \frac{x}{y}$ and $CD = nx$.

" Then if $a = AB$, $b = BC$, and $C = AC \frac{c^2 + n^2 x^2 - x^2}{2cnx}$

" $= \text{Cos. of } ACD \text{ and } \frac{b^2 p^2 + n^2 p^2 - x^2}{2bn p^2 x} = \text{Cos. of } ACD$

" BCD , also if s and $q = \text{Sine and Co-sine of } ACB$ then

" $\frac{c^2 + n^2 x^2 - x^2}{2cnx} \times q + s \sqrt{1 - \frac{c^2 + n^2 x^2 - x^2}{2cnx}}$

" $= \frac{b^2 p^2 + n^2 p^2 - x^2}{2bn p^2 x}$ where x may be determined by a quadratic Equation, and will

" be found $= 7,4022$ when the Diameters of the dark Balls $= 3,5$ and 4 and $4,5$. Also

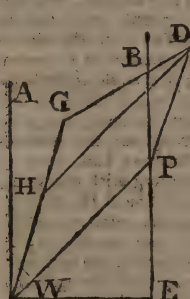
" when the Diameter of the luminous one $= 1$, then $AB = 15$, $BC = 16$, and $CA = 17$.

" One Thing is to be taken Notice of, and that is, when any one of the Quantities n , m , p , is equal to, or greater than the Sum of the other two, the Question is impossible.

MATHEMATICAL QUESTIONS Answered.

Question 18, unanswered.

Quest. 19, answered by Mr. THO. HOPKINSON of Coldwell, Derbyshire.



LET AWP represent the South-west Part of the Horizon, AW and PE two Meridians, the one AW passing through W, the Northernmost Pillar, the other through P the Southernmost Pillar; PD and WG representing the Length of their Shades, which Lengths will be expressed by $60m$ and $40m$, where m represents the Co-sine of the Sun's Altitude; but let us put $n = 60$, and $d = 40$, then nm and dm will also represent the Length of their Shades: Let us also put $v =$ the Difference of the Pillars Heights, consequently mv will represent the Difference of the Lengths of their Shadows $= GH$, (supposing DH parallel WP.) Now let us put $s =$ the Sine of $45^\circ = \text{Angle } PWE = EPW =$ the bearing of the two Pillars from each other; this done I put $z =$ the Sine of the Sun's Azimuth from the South, its Co-sine x (the Angle being the Azimuth from the Meridian, which I suppose is towards the West) then will the Co-sine of the Angle PDH be $= sz + Sx$, and which

is $=$ the Co-sine Angle GDH: Now from the known Property of Triangles $WP^2 + HG^2 - WP \times HG \times 2 \text{ Co-sine Angle } GHD = GD^2$ Hence $200^2 + m^2 v^2 - 400 mv sz + 400 mv sz$ a Minimum. But in this Expression we have two unknown Quantities, the which we can exterminate by reason we have the Latitude of the Place and Day of the Month given, consequently the Sun's Declination; which done, and the Expression thrown into Fluxions and reduced, you will find that on June 20, 1755, at $\frac{1}{2}$ an Hour past 5, after Noon, the top Shades were nearest.

The same answered by Mr. W. BEVIL.

AS the Southernmost Pillar is the highest, it is evident it must be some Time in the Afternoon, on the Day given, when the Shadows of their Summits were nearest together. This being premised, let P and W represent the Places of the two Pillars, whose given Heights (40 and 60) let be denoted by a and b respectively; then, supposing $v =$ the Co-tangent of the Sun's Altitude, the Lengths of their respective Shades, DP and WG will be av and bv , draw DH parallel to PW, and WE perpendicular to the two Meri-

dian Lines WA and BPE, putting $c = DH = PW = 200$, $f = b - a$, $s = \text{Sine } 45^\circ = \text{EWP} = \text{AWP}$, $z = \text{Sine of AWG}$ (= the Sun's Azimuth from the South) and $u =$ it's Co-sine; then $GH (=bv - av) = fw$, and $sz + su = \text{Co-sine of GWP} = \text{GHD}$: Therefore $\overline{HD}^2 + \overline{HG}^2 - \overline{GH} \times \overline{HD} \times 2 \text{Cof. Angle H} = \overline{GD}^2 = c^2 + f^2 v^2 - 2csf v z - 2csf v u$, a Minimum: Put $p = \frac{f}{2cs}$, $q = \frac{c}{2f^3}$, then $q + p v^2 - v z - v u$

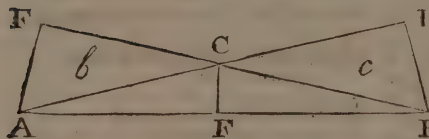
a Minimum; let e and d = the Sine and Co-sine of the Latitude, n = the Sine of the Sun's Declination, and x and y the Sine and Co-sine of his Altitude, then we have $q +$

$$\frac{py^2}{x^2} - \frac{y}{x} \times 1 - \frac{ex - n}{dy} \Big| \frac{1}{2} - \frac{y}{x} \times \frac{ex - n}{dy}; \text{ which by Reduction, (putting } -dp + dq - e = r, e^2 + d^2 = 1 \text{ and } d^2 - n^2 = b) \text{ becomes } \frac{dp + rx^2 + nx - x\sqrt{b - x^2} + 2enx}{dx^2}$$

This thrown into Fluxions and reduced, gives $2dp + nx \times \sqrt{b - x^2} + 2enx = bx + enx^2$; whence $x = .39359048 = \text{Sine of } 23^\circ 10' 41''$, the Sun's Altitude; and from thence the Time of the Day is found 5 H. 27 M. 3 Sec. in the Afternoon.

Question 20, unanswered.

Question 21, answered by Mr. CHARLES DYER.



LET $a = AB = 360$, $b = 6440$, $c = 6600$, and suppose CF perp. to AB, $= x$ and $y = BC$: Then $y : x :: a : \frac{ax}{y} = AE$, and $\frac{2by}{ax} = CE$ and $AEq + ECq = ACq = \frac{a^2 x^2}{y^2} + \frac{4b^2 y^2}{a^2 x^2}$. But $c : b :: y^2 :$

$$\frac{by^2}{c} = \frac{a^2 x^2}{y^2} + \frac{4b^2 y^2}{a^2 x^2} = Cq, \text{ and } ABq - BCq - 2BC \times CE = ACq \therefore a^2 - y^2 - \frac{4by^2}{ax} = \frac{by^2}{c} \therefore caxyz + baxy^2 + 4bcy^2 = a^3 cx. \text{ Let } c + b \times a = g, \text{ then } y^2 =$$

$$\frac{a^3 cx}{gx + 4bc}, \text{ which substituted in the first Equation gives } \frac{a^3 bx}{gx + 4bc} = \frac{x}{ca} \times \frac{gx + 4bc}{gx + 4bc} + \frac{4b^2 ca}{4b^2 ca}.$$

This Equation reduced and brought into Numbers is $31083,467784 x^2 - 72,43353783 x^3 - x^4 = 42497600,96353$. In a Tryal or two I find x near 40, wherefore I suppose $x = 40$, and I find it too much by 40201,06975. Again, supposing $x = 39,9$, and I find it too little by 148020,3276: Whence, as the Sum of the Errors is to the Difference of the Supposition, so is the last Error to a fourth No. which, added to the last Supposition, gives $x = 39,97864$, true to five decimal Places. Again, trying with 39,978 I find the Error too little by 1220,658494; from hence, and the Error, with 40, I find x

$$= 39,978648318 = CF. \text{ Then } BC = \sqrt{\frac{a^3 cx}{gx + 4bc}} = 185,51767818 \text{ Yards, } AC =$$

$$\sqrt{\frac{a^3 bx}{gx + 4bc}} = 183,2551837 \text{ Yards, and the Area of the Triangle } ABC = \frac{ax}{2} = 7196,15669724 \text{ square Yards.}$$

New QUESTIONS to be answered.

Question 51.

Required the Difference between the true Discount of any Sum of Money, and its true Interest, for any Rate per Cent. per An. simple Interest, by a general Theorem.

Question 52. By TYCHO, jun.

What fixed Star of the first Magnitude will be nearest to the North Pole, in the Year of our Lord 3000.

Question

Question 53. By MECHANICUS.

BEING at some Distance from two Wind-Mills, and observing the Vanes of one of them turn round four times, whilst the Vanes of the other turn'd round five times, I had the Curiosity to go and examine them both, and found them alike in Length, Breadth, Position, &c. and every other Way

but in the Inclination of their Planes, and that of the latter 50° . Required that of the former?

Question 54.

WHAT Depth must a Body descend below the Earth's Surface, to acquire a Velocity of $16\frac{1}{2}$ times that with which it begins to descend, supposing g any given Power?

Written as an Exercise at an Ordination,
at receiving Priest's Orders.

"TO various trials from our birth assign'd,
" "The lot dispens'd to suffer human kind,
" "With diff'rent int'rests, in our breasts at strife;
" "The brutal nature with the heavenly life;
" "Prest by temptation, prone to sensual ill,
" "Our reason ductile to our fordid will.
" "What powerful aids has pitying heav'n prepar'd?
" "What clue to lead us, or what arms to guard?"
——— These be thy task O man divine!

to show
CHRIST's order'd guide to devious souls below;
To the sweet labour all thy strength apply,
Truth's broad-spread chart held obvious to the eye.

Those leaves that set our erring footsteps right,

Turn in thy cautious hand by day by night:
Point thence what paths direct, what pits betray,

And, kind as skilful, lead thy self the way.
Example more than precept's force prevails;
This wins the wand'rer where cold precept fails.

O, happy they! who, faithful to their God,

Conduct the Pilgrims thro' the treach'rous road

Who watchful mod'rate, humble—good to all,

Feel their hearts echo to the sacred call.
Live but themselves, and others more to bless,
First in the practice of those truths they press.

These shall in heav'n, the seat of fair renown,

An ampler palm receive, a nobler crown;
With endless as superior lustre rise,
Bright as a sun in more resplendent skies.

M. B.

To Miss

I.
THE midnight moon serenely smiles,
O'er nature's soft repose,
No lowering cloud obscures the skies,
Nor ruffling tempest blows,

II.

Now every Passion sinks to rest,
The throbbing heart lies still;
And varying schemes of life no more
Distract the labouring will.

III.

In silence hush'd, to reason's voice
Attends each mental power;
Come dear *Amanda*, and enjoy
Reflections favorite hour.

IV.

Come, while this peaceful scene invites,
Let's search this ample round;
Where shall the lovely fleeting form
Of happiness be found?

V.

Does it amidst the frolic mirth
Of gay assemblies dwell?
Or hide beneath the solemn gloom
That shades the Hermit's cell?

VI.

How oft the laughing brow of joy
A sickning heart conceals,
And thro' the cloister's deep recess
Invading sorrow steals.

VII.

In vain thro' beauty, fortune, wit,
The fugitive we trace;
It dwells not in the faithless smile
That brightens *Clodio's* face.

VIII.

Howe'er our varying notions rove,
All (yet) agree, in one,
To place its being in some state,
At distance from our own.

IX.

O blind to each indulgent gift
Of power, supremely wise,
Who fancy happiness in ought
That providence denies.

X.

Vain is alike the joy we seek,
And vain what we possess,
Unless harmonious reason tunes
The passions into peace.

XI.

To temp'rate bounds, to few desires,
Is happiness confin'd,
And deaf to folly's noise attends
The music of the mind.

Tit for Tat: or, old Scores quitted.

A S O N G.

I.

IN a pityful pother post-haste to his mother
Young *Cupid* the other day ran,
And forely complain'd his pow'r was dis-
dain'd.

By a meermortal—wretch of a man.

II.

“Had *Jove* us'd me thus, I'd not made such
a fuss,

“Tho' this I ne'er bore e'en from him ;

“First a *swan*, then a *bull*, this celestial old
gull

“I could make for the sake of a whim.

III.

“But this puppy below—(dear mama, do
but throw

“A look o'er this list I have here,) ”

“Here's *Suky* and *Dolly* and *Kitty* and *Molly*,

“O! the rogue should be pistoll'd—that's
clear.

IV.

“Love's flame, he ne'er knew, then stir,
(dear madam) do—

“E'er our empire's entirely abolish'd,

“Can you bear this disgrace?—(pray be-
hold!) to your face,

“See! your four fairest nymphs here de-
molish'd!”

V.

Dear *Cupid* (reply'd the goddess soft-ey'd)

I've mark'd this strange wanderer too ;

And (child) to speak truth, I dislike not the
youth,

Tho' he is an arch-rebel—that's true.

VI.

“Howe'er lets slip down and somewhere in
town

“We'll maul him for all these in one.”—

Then to—yard, son and mother drove hard,
Bent to hit him as sure as a gun.

VII.

As asleep *Charlotte* lies, *Venus* steals from her
eyes

A quiver of arrows so fell ;

Love taking his stand at the word of com-
mand

Lets drive at poor *Florio* pell-mell.

VIII.

The first shot of all gave our youngster a fall,
The dart was mark'd—*wit and good-*

sense—

But of all the severest and what came the
nearest,

Was mark'd—from—I must not say
whence.

IX.

Now came hits by the score seven hundred
and more,

Nor himself could he longer defend ;

The poor poltroon look'd just (if my like-
ness you'll trust)

Like the man at the Almanac's end.

X.

Now our once jolly lad is become very sad,
Grown careless—says nought but heigh!

ho!

With arms folded walks, often sighs, seldom
talks,

And a sloven's become our gay beau.—

XI.

Dull verses he writes and love-billets indites,
And has lost all his relish for fun ;

And unless, in a day, she grows kind I may
say,

’Troth, for ever and aye he’s undone.—

*Reynard out-witted: or, the Lawyer
caught in his own Trap.*

A T A L E.

ONCE a folicitor of high renown,
The most notorious tricking knave in
town ;

By his pert clerk was ask'd, a full grown elf,
Just entering on the cheating trade himself,
(That he instruction gainful thence might
draw)

What was the nicest quirk to cook in law ?

Ah *Tim*! reply'd the man of art and wiles
With a rogue's face, compact of plot and
smiles,

For such deep mystery you must pay your
venture,

This was not articulated in our indenture.

“A handsome treat, good food, and store of
wine,

“Be this agreed to, and the secret's thine.”

The match was made, the supper straight
bespoke,

When the sly chapman this his nostrum
broke ;

“A staunch good witness, *Tim*, (this maxim
draw

“From all the rest) is every point in law,

“This will success, in the worst cause, se-
cure ye,

“A staunch good witness is both judge and
jury”——

All of the best they fed, they drank their fill ;
To pay—the pupil hands old *Soph* the bill.

“Hey dey! what's here? our treaty you've
forgot!

“Why *Tim*!—’twas bargain'd you shou'd
pay the shot.”——

Your pardon, Sir, your maxim's good,—but
mark,

Your out in practice, I'm your worship's
clerk.

Your staunch good witness is not here to
vouch :

Bills

Bills claim disbursement from the master's pouch.

Grey Reynard sigh'd, he hung his wrinkled jaws,

So pay'd the costs of suit and lost his cause.

This moral learn—the over-reaching elf
In his own bow, oft times out-shoots himself.

The Poet sallying from his Lodgings to the Park.

Hold—let me look ere I adventure,
'Loof! Bailiff, while the street I enter.

My thoughts his presence fore affrighten—

He dog's each couplet while I'm writing,

Who touch'd?—I tremble to the toes—

O—'twas a fie buzz'd cross my nose—

Blest chance! my danger was but mental,

Fear is to bards so incidental.

A catchpole's a disease most plaguey,

'Tis the starv'd wit's quotidian ague.

What son of fame; to Phæbus dear,

But feels the fit quite thro' the year?

See HIM around the Play-house rage

To catch the monarch of the stage;

Off has he, from his height of pow'r

Been dragg'd, to durance, in an hour,

By the fell caittiff and his mate;

Hid ambush'd at the postern gate.

Great PHILIP's heir that won the world,

Has the same night in goal been hurl'd;

And mighty Cæsar, by their dodging,

Been pent up—in a penny lodging;

Imperial queens, who, just before,

The diadem and purple wore,

For whom enamour'd heroes wept,

In spunging-house have (captive) slept;

Lock'd up to suffer legal rape,

By palms whose gripe no wight can 'scape.

At drawing-rooms, from birth-day show,

They lurk to snap the way-laid beau;

His sword-hilt bunch'd with silver tag,

His formidable breadth of bag,

The coat lac'd thick from cape to skirt,

Can not preserve him from the dirt;

Haul'd from his chair, away they sally,

To the blind gin-shop of some alley,

There in strait quarters they repose him,

Till prison walls, more wide, enclose him.

Such is the wretches dire mishap,

Whom catchpoles bird-lime fingers trap;

Monster, more mercilefs and fell,

Lives not, for certain, out of hell:

Nay, bards have sung, and debtors swore,

The devils 'gainst him clap the door;

They think, to heat for him a kettle,

Their fire and brimstone all too little.

O how I chuckle (but in thought)

To see him by the rabble caught,

By a whole hooting host surrounded,

High in some dung-cart safely pounded,

Worry'd with bitter taunts and speeches;

Of gear dismantled, to his breeches,

Then, for purgation, head and rump,

Lugg'd, bear-like, to some kindly pump;

Or made (the pastime to enrich)

To duck beneath some fav'ry ditch;

Or in the nightman's dreary draught

Plump'd down and baited, 'fore and aft.

O may each bog-house, for his turn,

Discharge, brink-high, his copious urn.

Oft happen'd this in days of yore,

But ah! the Mint is now no more;

Numbers, that whilom there resorted,

Are fled—most hang'd—the rest—transported.

—Hark—what strange sound at unawares

Comes—(or 'tis fancy) from the stairs;

Grant, that no hungry beast of prey,

No Bailiff-breed, has prou'd this way:

Guard me, kind genius!—I despond—

Look to yourselves, there—I'll abscond.

To a LADY,

On her Passion for Dr. WATTS's LOGIC.

WHAT fancy'd pow'r is this! my beauteous maid;

Whence smit so soon! so artfully betray'd?

Fondly, alas! thou think'st, this deep-learn'd book

Has pow'rs to discipline our ev'ry look;

Our ev'ry vagrant thought adjust to rules:

And boast't ALL SCIENCE from the moral SCHOOLS.

Or I mistake, or you, the muse's friend,
In LOGIC vainly seek this glorious end.

Conscious I speak; and (spurning NATURE's lore,

Beyond her verge) the wond'rous cause explore.

Nor hard, the mighty secret to disclose;

Nor more, than what my fair already knows.

GRACE, the great lesson of the CHRISTIAN school,

The guide and former of the virtuous soul,

Will yet a firmer, nobler basis lay;

And bring her fav'rite charge a surer way.

GRACE, rais'd sublime on her imperial throne,

Will sway the mind by manners all her own;

And still, with purest sentiments replete,

Assign each appetite it's proper seat.

GRACE throws o'er resist thoughts the steepest reins,

And lays our passions in the softest chains.

Still makes each dark, dejected moment please,

And lulls the pensive, anxious breast to ease;

Does a new bias on the man impress,

And turns the savage into gentleness.

Refines to reason, what was rage before,

And ev'n the WISHES bids rebel no more.

Some Verses composed in a Journey, occasioned by these Lines, observed in the Parlour Window at the King's Head in Beconsfield, whilst waiting for Breakfast.

" *Dis-trust, and darkness of a future state*
" Make poor mankind so fearful of their
fate :
" Death in itself is nothing ; but we fear
" To be we know not what, we know not
where."

AT thy command I meekly yield
 My body to the dust :
 Jesus ! I trust in thee alone,
 And know in whom I trust.

II.
 Fix thou the time—(the time is fix'd
 In the divine decree :)
 Call, when the time is fully come,
 And I will answer thee.

III.
 My flesh and soul to thee I've giv'n
 In their united state :
 And is it more to trust thee, Lord,
 With each when separate ?

IV.
 I claim thy promise, here below
To dwell at length with me :
 And sha'n't I trust the word that says—
" Where I am thou shalt be ?"

V.
 Thy glorious angels stood prepar'd,
 - Soon as the beggar died,
 His parting spirit to convey
 To faithful *Abr'am's* side.

VI.
 Those morning stars thro' all my way
 Have been my daily guard :
 And can't I trust, when loos'd from clay,
 They'll bear me to my Lord ?

VII.
 Soon as pale death has clos'd my eyes
 Those radiant sons of light
 Are present to my mental view —
 O what a joyful sight !

VIII.
 They'll bear me up, in friendly hands,
 To regions yet unknown,
 And wafted o'er ethereal strands
 Present me at the throne.

IX.
 How glorious is thy gift of faith !
 That cheers the darksome tomb,
 And on the grave of noisome death
 Can shed a rich perfume.

X.
 Glorious ! that faith that bears the soul
 Above desponding fear,
 Joying to reach the heav'nly goal,
 And longing to be there.

J. W.

Sent by a Country Clergyman to his Peruke-maker at Grantham, Lincolnshire, with his Daughter's Hair.

Good Mr. Gill, I doubt not you skill,
 Nor dispute your strict justice and care ;
 Fifteen days after date, if you'll cover my
 pate
 With a wig of my daughter *Nann's* hair,
 Of a right flaxen white, let it sit round and
 tight,
 With a curl large as any goose egg is,
 With a fore-top as high as a rais'd ven'son
 pye,
 And as full as the calf of my leg is :

Long before as behind, for that is my mind,
 Will best become my broad face ;
 Thirty inches in all is the round of the caul ;
 Thus mounted, my features 'twill grace.

And as for your pay, let me know but the day,
 And set your price lower or higher,
 I'll pay you as soon, and as much to the tune
 As the dean does himself, or our 'quire.

The Gentleman, not hearing from the Barber, wrote as follows :

Good Mr. Gill, I can take nothing ill
 From a man of your merit and fame ;
 But I fear you postpone my poor caxen alone,
 And have finish'd all others that came.

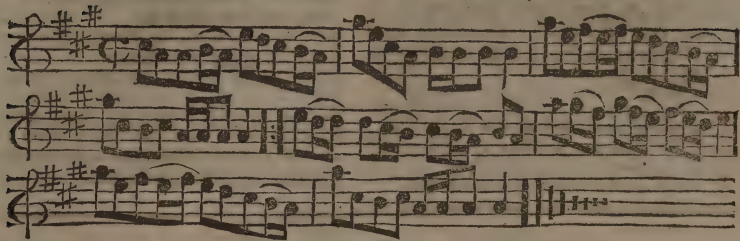
If it's not on the pipes, I cou'd wish you the
 gripes,
 Because you've deferr'd it so long ;
 But you know I ne'er quarrel with ought but
 a barrel,
 Nor with that, if it's mellow and strong.

At good *Whitfuntide*, you know that the
 bride
 And the bridegroom haunt me for the job ;
 Then how odd wou'd it look, for the parson
 to snook
 In a forry old hay-colour'd bob !

Pray make no mistake, for next week is our
 wake,
 And if it's not finish'd by then,
 You may wipe your backside with this piece
 of my pride,
 And send me my hair home again.

The

The SOW in the SACK, A Country Dance.



Cast off, and Hands round with the 3d Co. — Cast up again, and Hands round with the 2d Co. — Crofs over two Co. — Lead to the Top, foot it, and cast off —

* * Captains or Masters of Ships, or other ingenious Gentlemen possessed of any curious useful Draughts of Towns, Ports, or Harbours, which have not been yet published, will greatly oblige the Author and Publisher of this Magazine by sending them to W. OWEN, Bookseller, at Homer's Head, in Fleet-street, near Temple-Bar; which shall be engraved and printed at their sole Expence, and inserted, from Time to Time, in this Repository of Arts, with the several Draughtsmen's Names annexed when permitted.

A CHRONOLOGICAL MEMOIR of Occurrences.

For SEPTEMBER 1755.

Vienna, Aug. 26.

WE learn from Hungary, that Orders having been given at Great Warasdin to sink a Well for the Service of the Garrison, the Workmen having at a great Depth, broke through a Stone, made their Way into a Vault, in which they found a Globe of Silver, richly gilt, which had been surrounded by a Cross; a Crown of the same Metal, finely ornamented with Rubies and Emeralds; a superb Persian Robe, embroidered with Gold, and a small Dragon of solid Gold, which served for a Clasp at the Neck, with various other Things of Value, which have been dissipated by the Workmen. It is believed, from a Concurrence of various Circumstances, that this was the Tomb of the famous Mary Queen of Hungary, who espoused the Emperor Sigismund, and died in 1392.

Frankfort, Aug. 31. They write from Prague, that one Mr. Simon, a Jew, of that City, and a Virtuoso in Medals, having made use of a large Glass Phial in mak-

ing some electric Experiments, within which he had substituted for Steel-filings, &c. a Parcel of old Copper Coins, to the Weight of near 12lb. he, by Accident, being busy in adjusting the Apparatus, received the electric Shock on his Forehead from the prime Conductor, and became, in Consequence, instantly without Speech or Motion; in which Condition he remained some Hours, and was not entirely recovered for several Days. It is added, the Method he took to complete his Recovery, when he became sensible, was to suffer the frequent Reiteration of the Experiment with a smaller Phial, in which was included fair Water, giving the electric Power a Direction immediately thro' the Parts most affected.

Utrecht, Sept. 8. Near Kulenburg in Guelderland, a Place called the Green-way, being dug up by the Populace (on Account of several Pieces of Gold and Silver Money, with which the Ground appeared to be strewed after a long and violent Rain) a great

Quantity of old Coin has been found, not deposited on any single Spot, but dispersed thro' the whole Terras to the Length of 200 Rood, and lying about six Inches beneath the Surface of the Earth. The Gold Coins differing in Size, agree nearly in the Weight of a Ducat. They differ also in Specie. Among the most Modern are those of the Bishops of Utrecht, with the Name and Arms of the reigning Prelate; and on the Reverse, the Figure of John the Baptist: Others are of

the Earls of Holland of the House of Burgundy. There are also some Roman, Flemish, and French Coins. The Silver Pieces bear all of them the Words, CHRISTUS REGNAT, VINCIT, IMPERAT. The Populace are still digging, and several ingenious Antiquaries are on the Enquiry to purchase those of valuable Antiquity, among which, it is said, have been found most of the Species of Roman Coins mentioned by Pliny, and which gives Hopes of a further Discovery.

L O N D O N.

Aug. 22. **A**T the End of a Tempest of Thunder and Lightning, a Ball of Fire fell from the Clouds into a Field of Wheat, belonging to Mr. Money, a Farmer, in Trowse Newton, near Norwich, just as the Harvest Men had finished the Reaping of it, it burnt a great Part of a Shock of Wheat to Ashes, what remained was parched of a brown Colour, and smelt strong of Sulphur. The Noise of the Explosion was so great, that it almost deafen'd the Ears of those Reapers which stood nigh it. Just such another Meteor as the abovementioned was observed to fall on Mouthold-heath, one Summer Evening in the Year 1740.

28. Five adult Blacks, three Men and two Women, were baptized at the Royal Chapel of the Savoy before a numerous Audience, who were so affected at their sensible and earnest Responses, that few of them could refrain from Tears.

29. Orders were delivered at Portsmouth for making Reptivals on the French.

Sept. 1. Was landed at Wapping, the first salt Fish ever brought to England from Nova Scotia, which, in Quality, is equal to the best Barrel Cod.

2. The Parliament was prorogued till the 23d Instant.

An Embargo has been laid on Provisions and Naval Stores in all the Ports of Ireland.

4. The Vice-Chancellor of Cambridge has given Notice that *the Goodness of the Supreme Being* is to be the Subject of the Poem for the preceding Year; and the Performance of each Candidate is to be brought to him before the 24th of October.

7. Orders arrived at Cork, to give Liberty to export Beef to our Colonies, Garrisons, &c.

8. A terrible Fire broke out at Mr. Watson's a Callicoe Printer at Morris's Causeway, near Cuper's Gardens, Surry, which consumed his Workshops, Outhouses and Stables: but the Dwelling-house was happily saved. The Damage done, is said to amount to several thousand Pounds.

At the Session at Guildhall, Robert Alfop, a Midshipman of one of his Majesty's Men of War, was convicted, upon his own Confession, of riotously entering the Dwelling-house of William Godfrey, at Billingsgate, on the 25th of June last in the Night-time; and for seizing him by the Collar, knocking him down, forcibly dragging him out of his House, carrying him on board a Tender on the River Thames, and confining him in the Hold for twelve Hours, without any Warrant or lawful Authority, to the great Peril of his Life; when the Court was pleased to fine him 5l. and to order him to be imprisoned one Year in Newgate.—This Prosecution was carried on by the Directions of the Court of Aldermen, at the Expence of the City, in order to vindicate the Rights and Privileges of its Citizens, and to prevent such Inferences for the future.

11. This Morning, at half an Hour past Nine, came on the Trial of Charles Bradbury, the Methodist Preacher, for Sodomy: The Prosecutor was James Hearne, a Lad about 15 Years of Age, who swore the Prisoner had perpetrated that detestable Crime on his Body several Times; about Three in the Afternoon two Evidences for the Prisoner deposed, the Prosecutor had owned to them on Wednesday last, that what he said against Bradbury was all false. He was asked by the Court whether he did not acknowledge it all to be false, and answered he did; and upon being asked again, whether what he had then sworn was true or false, he declared it was false, and that the Prisoner was innocent; upon which he was acquitted, after a Trial of five Hours and a Half.

12. About four o'Clock in the Afternoon, a Lighter loaded with Coals coming through Bridge, struck against the Starlings on the Southwark Side, and immediately sunk. Both the Lightermen lost their Lives, notwithstanding Boats instantly put off from Pepper-Alley Stairs to their Assistance.

A Danish Gentleman being lately detected
in

in seducing English Artificers to leave the Kingdom, having procured no less than nine Men belonging to the Glass Manufactory to go to Denmark, he was thereupon committed to Newgate, the Penalty being 500*l.* for every Workman so seduced, amounting in the Whole for the Nine above-mentioned to 4500*l.* But having since been admitted to 1000*l.* Bail, by another Justice of Peace, without the Knowledge of the Prosecutors, he has made his Escape to Denmark, where probably he will be able, with the above Workmen, to establish that valuable Manufactory.

15. There was Advice that the Blandford Man of War, with Governor Lyttleton and his Lady on Board, fell in with the French Fleet and was by them carried into Brest. But the French King has since ordered Mr. Lyttleton to be released.

Some Days before this happened, we are told, that part of Admiral Hawke's Fleet chased on Shore a French Ship bound from China; which went to Pieces immediately, and every Person on Board perished.

Several armed Men went at Night to the Lodging of one Michael Mahony, facing the Red-Lion in Oxford-Road, to apprehend him for a Robbery, and for selling a Horse last Friday in Smithfield Market that was stolen; but the Fellow finding the House surrounded, came boldly down Stairs, faced his Assailants, and after firing two Pistols, and cutting three Men most terribly with a Hanger, he made his Escape. One of the Men had his Right Hand almost cut off.

A Man was committed to New Prison, by Justice Welsh, for ravishing a Girl of nine Years of Age in the Long Fields, Bloomsbury.

16. The King landed about Noon at Margate, and arrived at Kensington about Nine o'Clock at Night, in perfect Health. His Royal Highness the Prince of Wales, the Princess Dowager, and the Duke, were there some Hours before his Majesty's Arrival. As were also most of the Lords of the Regency, to welcome his Majesty to his British Dominions.

The Sessions ended at the Old Bailey, when Five received Sentence of Death; 31 were ordered for Transportation for seven Years; Four to be whipped; and One branded.

The Anna Maria, a Swedish Ship of 600 Tons, freighted with Naval Stores for France, was stopt a few Days ago by one of our Men of War, the Captain of which put a Lieutenant on board of her, with a sufficient Number of Hands to bring her into the Downs; but the Wind blowing very hard from the North-west, they were driven towards the

Flemish Coast, where they were in great Danger of being wreck'd: Upon which the Master of the Swedish Ship persuaded the English Lieutenant to make for the first Port, as the only Way to save every Soul on board: And accordingly the Lieutenant steered into the Harbour of Dunkirk, the Governor of which has taken the Charge of the Ship out of the Hands of our Lieutenant and his Men, and very politely told them, that he would give them Credit for any Money or Necessaries they might want for their Passage back to England.

17. A blind black Fellow, who generally sat begging Alms between the Foundling-Hospital and the Bowling-Green, was committed to New-Prison by Saunders Welsh, Esq; for assaulting Ann Baxter, an Infant of four Years of Age, with an intent to ravish her. The Child is grievously injured.

18. At a Court of Common-Council held this Day at Guildhall, it was unanimously resolved, that an humble Address should be presented to his Majesty, to congratulate him on his happy Arrival: And the following Gentlemen were appointed a Committee to draw it up:

Sir Rob. Ladbroke,	Mr. Benj. Gascoyne,
Mr. Ald. Cockayne,	Mr. Deputy Woods,
Mr. Ald. Rawlinson,	Mr. Deputy Long,
Sir Charles Asgill,	Mr. George Wyde,
Mr. Ald. Blackiston,	Mr. Deputy Coles,
Mr. Ald. Bridgen,	Mr. Thomas Cogan,
Mr. Deputy Hodges,	Mr. Rob. Henshaw,
Mr. Deputy Ellis,	Mr. Deputy Nash,
John Paterfon, Esq;	Mr. John Saffory.

Who, with the Recorder, immediately withdrew; and in about an Hour returned with an Address; which being read and approved of, the Sheriffs waited on his Majesty, to know when he would be pleased to receive the same: When he appointed the next Day at One o'Clock. And,

19. This Day the Rt. Hon. the Lord-Mayor, Aldermen, Commons of the City of London, in Common-Council assembled, waited on his Majesty to congratulate him on his safe Return, and being introduced to his Majesty by his Grace the Duke of Grafton, Lord Chamberlain of his Majesty's Household, William Moreton, Esq; the Recorder, made their Compliments in the following Address.

To the King's most Excellent Majesty.

The humble Address of the Lord-Mayor, Aldermen, and Commons of the City of London, in Common-Council assembled.

"Most Gracious Sovereign,

WE your Majesty's most dutiful and loyal Subjects, the Lord-Mayor, Aldermen, and Commissions of the City of London, in Common-Council assembled, humbly beg Leave to address your Majesty with our most sincere and joyful Congratulations, on your Majesty's safe and happy return to your British Dominions. Permit us, Royal Sir, with Hearts full of Gratitude, to express our sincere Acknowledgments of your Majesty's paternal Care and vigilant Regard for the true Interest and Prosperity of your People, by the vigorous Measures taken by your Majesty to protect our Commerce and Colonies from the Incroachments of the French.

"And we do humbly assure your Majesty, that we will, to the utmost of our Power, on this, and every other Occasion, cheerfully contribute towards the Support of your Majesty's sacred Person and Government, and the Defence of the just Rights and Possessions of your Crown, against all Attempts whatsoever."

To which Address his Majesty was pleased to return this most gracious Answer.

I Thank you for this very dutiful and affectionate Address. The Support of the Rights of my Crown, and the Preservation of my Dominions in America, are so essential to the Trade and Commerce of my People, that the City of London may depend, that I will continue to take such Measures, as may best tend to those great and important Ends. The Assurances you give me of your Zeal and Assistance, are very pleasing to me; and the City of London may rely upon the Continuance of my Favour and Protection."

They were received very graciously, and had the Honour to kiss his Majesty's Hand. After which his Majesty was pleased to confer the Honour of Knighthood on, William Moreton, Esq; Recorder. Samuel Fludyer, and John Torriano, Esqrs. Sheriffs.

25. The Parliament was prorogued till the 13th of November next, when, by a Proclamation issued, they are to sit for the Dispatch of Business.

List of Ships taken from the French.

A Schooner, carried into Halifax, in Nova Scotia.

Carried into Portsmouth, viz.

The four following taken by Capt. Gardiner in the Colchester.

Mary Lewis, about 250 Tons, laden with Linnen.

White Rose, about 150 Tons, laden with Brandy and Salt.

Generous, a Brig about 100 Tons.

A Brig laden with Pots.

One by Capt. Vernon of the Lyme.

Nostra Signiora, 170 Tons, laden with Tobacco.

St. Pedro, a Polucca, from Dunkirk to Marseilles.

Graces, from Cette for Havre de Grace.

A Ship with dry Fish.

La Societe, a Ship taken by the Centaur.

Active, from Havre for St. Domingo.

Bien heureux de Chantel, from Newfoundland for Dieppe.

St. Joseph, from Honfleur for Bordeaux.

A Vessel bound from Cape Briton to Dunkirk, by the Ambuscade.

The Marquis, a Ship laden with four Whales, by the Monmouth.

Nine Sail of French Vessels sent into Dover.

Two French Vessels brought into the Downs by the Centaur and Cruiser Sloop.

Into Plymouth.

Mary Catherine, from Martinico to Havre, taken by the Lyme.

Prince Charles, from St. Vallery, for Marseilles, taken by the York.

La Nantie, from Martinico, taken off the Ram-head.

Mary Anne, from Havre, for Marseilles.

Two Friends, bound to Rochelle.

Elizabeth, from Honfleur, for Brest.

John Baptist, from Guernzey. All by the Experiment Man of War.

A Brig, Name unknown, by the Experiment.

Annabella, from Havre, for Bourdeaux.

St. Francis, from St. Martin's, for Dunkirk.

St. Mark, from Nantz, for St. Domingo, by the Monmouth.

Le Treze Cantons, from Nantz, for Martinico, by the Monmouth.

A Sloop, Name unknown, Le Polade, from Morlaix.

A Prize in the Sound, Name unknown.

The Conception, from Marseilles, for Rotterdam, by two Tenders.

Duke of Parma, from Nantz, for St. Domingo.

Bonfoy, of the Isle of Dieu. These two by the Monmouth.

Two Fishing Boats, taken by the Bristol Tender.

Eternity, from Bourdeaux, for Oporto, laden with Indian Corn, by the York.

Esperance, from Rochelle, for Dunkirk, by the Experiment Tender.

Two French Brigantines and a Snow, sent into Falmouth, by the Experiment.

BIRTHS.

Sept. 4. Lady Mary Obrian, Daughter to the E. of Inchequin, and Wife to Capt. Obrian, delivered of a Daughter.

9. The Lady of John Pitt, Esq; one of the Lords of Trade and Plantations—of a Son.

13. Rt. Hon. the Countess of Lincoln—of a Son.

18. Rt. Hon. the Lady Cathcart—of a Son.

MARRIAGES.

Aug. 30. Sir James Markham; Bart. married to Miss Jane Clive.

Sept. 10. Wm. Freeman, Esq; to Miss Susannah Elkes, with 5000*l*.

Martin Mensby, of Bromley, Esq;—to Miss Jane Binyon.

15. The Hon. Charles Townshend, Esq; one of the Lords of the Admiralty, to the Rt. Hon. the Countess of Dalketh.

19. The Rev. Dr. Saunders, Canon of Windsor, to Miss Kendrick, one of the Co-heiresses of Dr. Kendrick, late Prebendary of Westminster.

DEATHS.

July—Geo. Hunter, Esq; Surveyor General of S. Carolina.

Aug. 19. Mr. James Whelan, aged 108, leaving behind him Children, Grand Children, &c. to the Number of 72, at Birr in Scotland.

Mr. John Lorkan, aged 112, who retained all his Senses to the last, at Meelick.

30. Mad. Maria Zephirina, the Dauphin's eldest Daughter, born Aug. 10, 1750.

The Lady Francis Westland, Relict of Sir Anth. Westland, Bart. at her Seat near St. Edmund's Bury.

Mrs. Moore, in the 104th Year of her Age, at Birmingham.

Sept. 1. Sir Hugh Hamilton, Bart. at his Seat of Rose-hall, in the Shire of Lanerk, Scotland.

4. Capt. Tho. Markham, about 40 Years, in the Royal Regiment of Horse Guards, Blue.

7. Mr. Prime, one of the Cashiers of the Bank.

9. Mrs. Katherine Gunning, Sister to John Gunning, Esq; and Aunt to the Dukes of Hamilton and Countess of Coventry.

Sir John Bland, Bart. on the Road between Paris and Calais.

The Rev. Mr. Herbert Randolph, Rector of Deal, and also of Woodchurch, and one of the six Preachers at the Cathedral of Canterbury.

13. James Neld, Esq; one of his Majesty's Justices of the Peace for Westminster.

Nich. Tempest, Esq; second Son of Sir Geo. Tempest, Bart. at his Seat at Tong, Yorkshire.

16. John Idle, Esq; Lord Chief Baron of the Court of Exchequer in Scotland.

18. Capt. Geo. Campbell, aged near 70, at Chelsea.

Civil and Military Preferments.

John Neal, Esq; appointed Lieutenant in the third Regiment of Guards.

Henry Stubbs, Esq; Capt. of the Royal Regiment of Horse Guards.

Capt. John Donkley, Capt. of the Brilliant Man of War.

Mr. John Butt, first Clerk of the Drawing-Office at the Bank, a Cashier.

ECCLIASTICAL PREFERMENTS.

Rev. Sam. Wildman, B. A. presented to the Rectory of Cumber, Berks.

Tho. Newman, M. A. to the Vicarage of Framley, Hants.

Tho. Leighton, M. A. to the Rectory of St. Mary South Baily, in the City of Durham.

Tho. Dodson, B. A. to the Rectory of Shipton, Wilts.

Mr. Nich. Wakeman, to the Rectory of Ingram and Timworth with Culford, in the County of Suffolk.

Sam. Milton, M. A. to the Rectory of Shenbury, Lincolnshire.

Mr. Rich. Morgan, to the Vicarage of Hale, in the County of Devon.

Mr. Wm. Trover, to be Domestic Chaplain to the Rt. Hon. the E. of Westmorel.

Mr. Jortin, Rectory of St. Dunstan's in the East, Doctor of Divinity.

Tho. Hind, B. A. to the Rectory of Langham, in Lincolnshire.

Tho. Longman, B. A. to the Rectory of Monckton Peverel, in the County of Devon.

Geo. Bingham, B. D. to the Rectory of Moor-Critchel, in the County of Dorset.

Mr. Foster, to the Rectory of Keal, in Lincolnshire.

Hugh Morley, B. A. to the Rectory of Melton, in Wiltshire.

Mr. John Glasbrook, to the Vicarage of Rounds, Northamptonshire.

Mr. Charles Charlton, to the Rectory of Bonnington, Nottinghamshire.

Mr. Cox, to the Living of Urwin Court-nay, Dorsetshire.

Dispensations to hold two Livings.

Wm. Trevor, M. A. to hold the Vicarage of Barrow, Lincolnshire, with the Living of North-Cotes, in the same County.

Geo. Timms, B. L. to hold the Rectory of Hartpole, with that of Corlesbrook, both in Northamptonshire.

Nicholas Carter, D. D. to hold the Rectory of Wood Church, with that of Ham, both in Kent.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane.

- Sept. 13. *The Recruiting Officer.*—*The Anatomist.*
 16. *The Careless Husband.*—*Lying Vallet.*
 18. *As you like it.*—*The King and the Miller.*
 20. *The Mourning Bride.*—*The Devil to pay.*

B—KR—TS.

- Aug. 23. James Dongworth, of Allhallows, London-Wall, Currier.
 John Phillips, of Darkhouse-lane, Distiller.
 Anicetus Thomas, of St. George Hanover-Square, Slater.
 26. Thomas Tuckett and Joseph Tuckett of Piddletown in Dorsetshire, White Leather-Dressers and Woolstaplers.
 30. George Catcott, of Bristol, Grocer.
 Edw. Bateman, of Stuchbury, Northamptonshire, Chapman.
 John Simms, of Leadenhall-street, London, Linnen-Draper.
 Sept. 6. Edward Tibinham, of Filby in Norfolk, Linnen-Draper, &c.
 Hallifield Ball, late of Tortola, Merchant, now of Bristol.
 Elizabeth Rhodes, of Dudley in Worcestershire, Hofier.
 Archibald Finney, of St. Alban's, Innhold.
 9. John Donaldson, of St. Luke's, Middlesex, Merchant.
 13. J. Hill, of Hornchurch, Essex, Chapm.

COURSE of EXCHANGE.

London, Semptember 23, 1755.

Amsterdam, ———	36	6
Ditto at Sight, ———	36	3½
Rotterdam, ———	36	7
Antwerp, ———	no Price	
Hamburgh, ———	34	8
Paris, 1 Day's Date, ———	31	10 1/10
Ditto, 2 Ufance, ———	30	10 3/10
Bourdeaux Ditto, ———	30	3 3/4
Cadiz, ———	38	1 1/4 a 1/8
Madrid, ———	38	1 1/4
Bilboa, ———	38	1 1/4
Leghorn, ———	48	
Naples, ———	no Price	
Genoua, ———	47	1 1/2
Venice, ———	49	5 1/8
Lisbon, ———	5s.	4d. 1/2
Porto, ———	5s.	3d. 1/2
Dublin, ———	7	7 a 1/4

BILL of Mortality from Aug. 19. to Sept. 16.

Buried		Christened	
Males	709	Males	567
Females	709	Females	575
Under 2 years old	568	Buried,	
Between 2 and 5	132	Within the walls	108
5 and 10	39	Without	316
10 and 20	33	Mid. and Surry	690
20 and 30	98	City & Sub. West.	304
30 and 40	130		
40 and 50	139		1418
50 and 60	118		
60 and 70	74	Weekly Aug. 26.	316
70 and 80	57	Sept. 2.	377
80 and 90	28		9. 345
90 and 100	2		16. 380
100 and 109	0		1418
	1418		

Observat. on the Weather, at Temple Bar.

	Baro-meter.	Therm.	Pluvia-meter.	Hygro-meter.
Aug. 26	30 : 0 3/4	29 1/2	0 : 0	64 Moist.
27	30 : 0 1/4	28 1/2	9 : 1	24
28	30 :	30	0 : 0	14
29	29 : 8 1/2	28 1/2	0 : 8	72
30	29 : 7	28 1/2	7 : 8	88
31	29 : 4 3/4	28 1/2	69 : 6	89
Sept. 1	29 :	28 1/2	34 : 5	98
2	29 : 2 3/4	27 3/4	47 : 6	89
3	29 : 8 3/4	27 3/4	10 : 4	60
4	29 : 7	28 1/4	0 : 9	87
5	29 : 8	28 3/4	0 : 0	74
6	29 : 9	28 1/2	29 : 6	78
7	31 : 0	29	0 : 0	75
8	30 :	29 3/4	0 : 0	89
9	29 : 7	30	9 : 5	85
10	29 : 0 1/2	26	4 : 0	49
11	30 : 0 3/4	25 1/2	0 : 0	19
12	30 : 1	26	1 : 1	37
13	30 : 1	29 1/2	0 : 0	86
14	30 : 1 1/4	28 3/4	0 : 0	87
15	30 : 0 1/2	29 1/2	0 : 0	84
16	30 : 0	30 1/2	0 : 0	24
17	30 : 0	32 1/2	0 : 0	81
18	29 : 9	29	0 : 0	84
19	29 : 7 1/2	27	0 : 0	38
20	29 : 6 1/2	27	12 : 4	85
21	29 : 6	28	6 : 6	84
22	29 : 5	27	6 : 0	85
23	29 : 6 1/2	29 1/4	0 : 0	67
24	29 : 7 1/2	28 1/4	0 : 0	84
25	29 : 9 3/4	27 1/4	3 : 8	82

BOOKS published since our last.

THE Art of Drawing and Painting in Water Colours. 1s. Keitb.

Corruptæ Latinitatis Index: Or a Collection of barbarous Words and Phrases, found in the Works of the most celebrated modern Writers in Latin. By W. Massey. Keitb.

The equal and impartial Administration of Justice with respect both to the Guilty and Innocent, recommended. A Sermon preached at St. Mary's Oxford, at the Assizes, July 16. By W. Doddswell, D.D.

The foreign Address; occasioned by the British Fleet, and the present Posture of Affairs. By a Sailor, 6d. Crowder.

Mr. Gibson's short practical Method of Cure for Horfes, 4s. Millar.

The History of the first Discovery and Settlement of Virginia. By W. Smith, A.M. President of the College of William and Mary in Virginia. Birt.

Jones's Lessons for the Harpsicord.

Letter to the Author of *some Considerations on the Art for preventing clandestine Marriages*. By a Country Clergyman.

List of the General and Field Officers, Governors, &c. 3s. Millan.

The Laugher; or the Art of Jestng. This is a Collection of Jest. 1s. Reeve.

Marriages in Society stated. In a Letter to Dr. Shebbing, by James Tunstall, D.D. 1s. Rivington.

Maud on the Doctrine of endless Torments. 6s. Wilson.

Naked Truth. 6d. Price.—This is an Address to the People against a War.

Ordinary of *Newgate's* Account of the Behaviour of Barnaby Horan, executed August 4, and James Signal and J. Sibborp, executed July 28.

Policy and Justice, an Essay. 1s. Crowder. *Prodromas*; or Observations on the English Letters. By Sayer Reed, M.D. Davy.

A Scale of first Principles, Religious and Moral, by Caleb Fleming. 6d. Payne.

Two Sermons on *Isaiah* xxix. 11, 12. and *Jer.* vi. 16. By the Rev. Mr. Crooke. 1s.

Sermon on the Death of the Rev. Mr. Morris. By Joseph Borroughs. 6d. Whiston.

A List of Foreign BOOKS.

Recueil général historique & critique de tout ce qui a été publié de plus rare sur la Ville d'Hercule: that is, a general, historical and critical Collection of the most curious Things that have been published on the City of *Herculeanum*, from its first Discovery to the present Time, collected from the most celebrated Italian Authors, as *Venuti*, *Maffei*, *Quirini*, *Belgrade*, *Gori*, and others, printed at Paris.

Observations sur les Antiquités de la Ville d'Herculeanum: that is, Observations on the City of *Herculeanum*, with some Reflections on the Painting and Sculpture of the Antients, and a short Description of some Antiquities near Naples, embellished with Plates. Paris.

Introduction à l'Histoire de Dannemarc, où l'on traite de la Religion, des Loix, des Mœurs & des Usages des anciens Danois. Par Mr. Mallet. An Introduction to the History of Denmark, treating of the Religion, Laws, Manners and Customs of the antient Danes. By Mr. Mallet. Copenhagen.

Considerations sur les Révolutions des Arts. Considerations on the Revolutions of the Arts. Paris. The Author explains the Con-

nection between Empires and Arts; the reciprocal Influence they have upon each other; the Causes by which the Arts are produced, and those by which they are lost, &c.

Historia Episcopatum fœderati Belgii, utpote Metropolitani Ultrajectini nec non suffraganeorum, Harlemonsis, Daventriensis, Leovardiensis, Groningensis & Middelburgensis. The History of the Bishoprics of the united Provinces; as well of the Metropolitan Bishopric of *Utrecht*, as of the suffragan Bishoprics of *Harlem*, *Deventer*, *Leuwarden*, *Groningen* and *Middleburg*. By Hugh Francis Van Hussen. 2 Vol. Utrecht.

Essais sur divers Sujets Litterature & de Morale. Literary and Moral Essays, by the Abbe Troublot, Member of the Royal Academy of Sciences and Belles Lettres in Prussia. Vol. 3. Amsterdam.

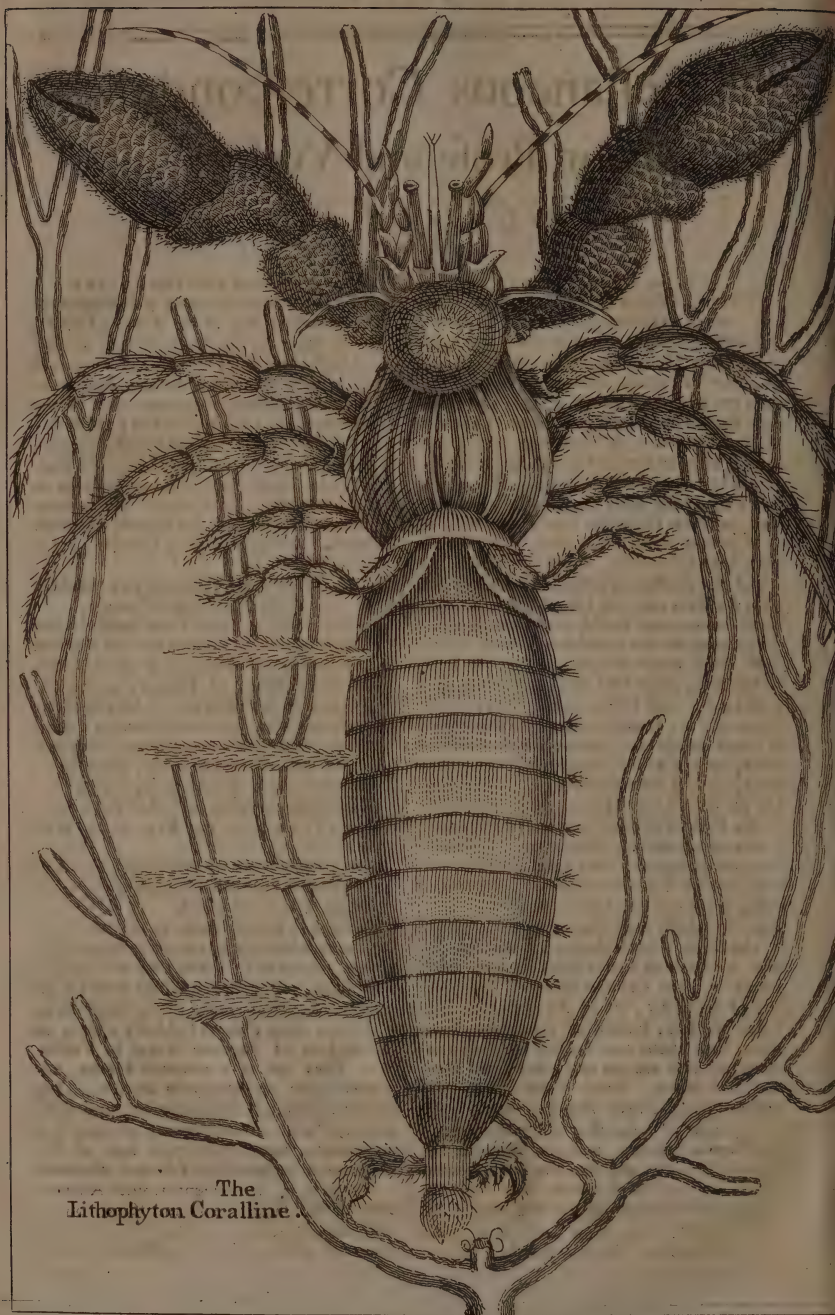
Epître de M. Voltaire, &c. An Epistle by Mr. Voltaire, on his arrival at his Estate near the Lake of Geneva.—This poetical Epistle is particularly remarkable for the noble Spirit of Liberty that breathes thro' it. It is reprinted in London by Wilson and Durham. 6d.

1

RAK Stock.	E-India.	South Sea S.	Sea old S.	Sea old S.	Sea An.	S. Sea An.	3 1/2 Ba.	An 3 1/2 Ba.	An 3 1/2 per C.	3 per Cent	India Bon.	B. Cir.	for Tot.	Tick
27 122 3/4	No Price.	No Price.	An. ft Su	Az d Sub.	new rfts.	2d Subf.	it Subf.	2d Subf.	India An.	Bank An.	An. 1751.	India An.	prem.	l. s. d.
28 122 3/4	Do	Do	103 3/4 1/2	93 3/4	94 3/4	92 1/2	92 1/2	90 1/2	90 3/8	90 3/4 1/2	91	90 1/2	37s a 38 3 15 0	9 12 0
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1 122 1/2	Do	Do	94 1/2	No Price.	92 3/8 a 1/2	No Price.	92 1/2 a 3/8	No Price.	91 1/2	92	Do	91	36s	9 12 0
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5 122	No Price.	103 3/4	93 1/2	Do	91 1/2	Do	92 1/2	91 1/2	90 3/8	91 1/2	91	90 1/2	38s	4
6 No Price.	Do	No Price.	93 3/8	91 1/2 3/8	92	91	92 1/2	91 1/2	Do	Do	90 1/2	90 1/2	38s a 39	9 17 0
7 Sunday.	Do	No Price.	93 3/8	91 1/2 3/8	92	91	92 1/2	91 1/2	Do	Do	90 1/2	90 1/2	38s a 39	9 17 0
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10 No Price.	Do	No Price.	Do	91 1/2	92 3/8	91 1/2	92 1/2 a 3/8	91 1/2	90 3/8	91 1/2	No Price.	91 1/2	49s a 41	9 19 6
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13 No Price.	No Price.	No Price.	94 1/2	91 1/2 3/8	Do	91 1/2	92 1/2	91 1/2	91 1/2	92 1/2	91 1/2	91 1/2	41s a 42 4	5 0
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17 123 1/2	Do	104	No Price.	92 1/2	92 1/2	Do	93 1/4	92 1/2	92 1/2	92 1/2	92 1/2	92 1/2	41s a 42 4	5 0
18 No Price.	Do	No Price.	94 3/8	92 1/2	92 1/2	91 1/2 3/8	92 1/2	91 1/2 3/8	No Price.	92 1/2	No Price.	Do	41s a 42 4	5 0

Mark-Lane.		Bainflocke.	Reading.	Farnham.	Henley.	Guildford.	Warriminter.	Devizes.	Gloucester.
Wheat 24s to 26s qr.	61 to 17s load	81 5s to 8l	61 7s to 7l 10.	07l 11s od load	07l 5s od load	27s to 34s qr.	24s to 35s qr.	5s od buh.	
Barley 12s to 14s od	14s to 17s qr.	15s to 18s 6d qr.	15s to 16s qr.	14s to 17s qr.	16s to 16s 6d qr.	13s to 16s	12s to 16s	2s to 2s 2d	
Oats 12s to 13s od	14s to 16s od	16s to 17s od	14s to 15s 6d	15s to 17s	11s to 14s od	11s to 12s	12s to 13s	1s 6d to 1s 8d	
Beans 14s to 16s od	12s to 21s od	22s	24s to 26s	12s to 23s	24s to 26s	12s to 27s	12s to 25s	2s 8d to 3s	

The Sea HERMIT Crab.



The
Lithophyton Coralline.

Miscellaneous Correspondence, in Prose and Verse.

For OCTOBER, 1755.

The Sea HERMIT-CRAB.

THIS Crab was 8 Inches long, the Eyes when extended from their Sockets a full Inch in Length, on each Side of the Eyes was a short Horn; from the Nose proceeds two Pair of Feelers, one Pair much shorter than the other and forked at their Ends; on each Side of the Mouth are a Pair of Pincers or short Claws. It had two large scaly Claws, alike in Size and Shape, having three Joints in each; the Head, Legs, Claws and fore Part of the Body crustaceous; the hind Part, which is the larger Part of the Body, is of a tender fleshy Substance, and covered with only a thin Skin; the Head is large and round, the crustaceous Part of the Body short with six Ribs running Lengthways of it; a small semicircular Shield crosses the Body at the joining of the crustaceous to the tender Part, from under which, and on the Back of the Fish, grow two small Legs with four Joints each, and forked at the Ends; a little above which, grow two more such like Legs of three Joints each, above which are four more, two of a Side, much longer and slenderer, having five Joints a Piece; all these are set with bristly Hairs. The fleshy Part of the Body is divided into eleven Parts or Joints by ten circular Membranes or Rings; it tapers and grows very small towards the Tail, which is again crustaceous: Out of it arises three crooked Claws beset with Bristles, by which the Creature holds itself fast in the Shell it hath chosen for its Habitation, by hooking these Claws into the small Turns or spiral Cavities thereof; from one Side of the fleshy Part of the Body arise four Tufts of Hair, somewhat resembling Feathers, each about two Inches long, and on the other Side are ten or twelve small short Tufts of Hairs. These Crabs inhabit the Shells of the *Buccinum Magnum variegatum*. Lister, 359. N^o. 12. they abide in the shallow Parts of the Sea, near the Shores of the *Babama* Islands, and like the Land Hermit Crab, get into those Shells only that are empty, not dispossessing any Fish of its Shell, and therefore they have been improperly called the Soldier Crab. *Catesby's Hist. of Carolina*, p. 34.

The LITHOPHYTON CORALLINE.

THESE Plants grow at the Bottom of the shallow Seas of the *Babama* Islands, some of them arrive to the Height of near three Feet, tho' most of them not above half so high; the Joints are thinner, and grow at greater Distances than any other of the Coralline Kind I have observed; the Branches are somewhat flat, of a dusky yellow, or Straw Colour, with a faint Stain of Purple at the Edges, which is not peculiar to this Plant, but is what a great many other Substances, besides the Sea Shrubs, are much liable to. *Catesby's Hist. of Carolina*, p. 172.

An Account of the ANIMALCULES exhibited in Eight Microscopic Views.

AS one principal Part of our Design in this Work will be to entertain our Readers with a continual Exhibition of all the wonderful Productions of Nature, in the minute Parts of her Works, by Means of the Microscope, and as this will furnish a great Number of curious Copper Plates, they will (when at last collected together, and properly disposed) form what we may with Propriety entitle, *A perpetual MICROSCOPIC COMMENTARY on the BIBLE OF NATURE.*

The present Plate contains eight Views of the smallest Kinds of *Animalcula* found in common Water, of which

View 1. exhibits those exceeding small Creatures which appear scarcely bigger than Points, and which, when they are hatched from Eggs, (altogether invisible even by the greatest Magnifier) make that *greenish Scum*, which we often observe suddenly appear on the Surface of stagnant Water in Vessels, &c. They are of a roundish Figure, extremely agile, and always in Motion. They appear constantly of the same Size, and without any Parts. What they at last turn to is not known, but probably to a Sort of Fly, too small to be seen by any Means whatever.

Views 2, 3, 4, present us with Animalcules of the same Form and Kind, but of different Sizes, larger; they all appear like animated Jellies, but of no distinct Parts externally.

A a

ternally

ternally; indeed in the larger Sort (View 4) you will observe a different Appearance of the internal Parts, which are always in Motion, and shew themselves by different Lights and Shades; and it is somewhat droll and diverting to see the odd Manner in which they move about in the Water; their Motion is slow, and they are often quiescent on the Bottom of the Glafs. We could never observe the Manner in which they take their Food, or that ever they preyed on the smaller Sorts, which are always found in great Numbers among them.

Views 5 and 6 present the Smaller Sizes of Animalcules of an oblong Figure, and almost pointed at each End; they seldom ever change their Form, but they can occasionally make themselves longer or shorter; they move with a direct and librating Motion, but not very swift, especially the largest Sort. It has been said, that the largest Species prey on the lesser very voraciously, but tho' we have viewed them constantly 30 Years, we never saw any Thing of that Kind, nor any Attempt towards it.

View 7 shews that very curious Anamalcule that is usually called the *Wheel-Animal*. It is a mere *Proteus*, varying its Form con-

tinually, as represented in the Figure, most of them are in the common Form; a few are represented with their Horns put out with something like the Appearance of a *Wheel* on the Top of each; these also have the Appearance of a *circular Motion*, and very swift; by this Means they make little *Whirl-pools* in the Water, which bring down small Objects for their Food, when they catch any they draw in their Horns and Wheels, and contract themselves into that roundish Form which you see in one or two. Of this Creature, we shall hereafter give a larger Account.

View 8 represents the *Anguiculae*, or small Microscopic Eels, in Vinegar, Paste, and some Sorts of Water; these are well known to all who are conversant with the Microscope, and will hereafter prove a curious Topic of Enquiry. We shall only at present observe, that tho' they are so small as scarcely to be seen with the naked Eye, we can easily shew them, in the darkened Room, by the *Solar Microscope*, 7, 8, or 10 Feet long, and 2 or 3 Inches thick, and more than 100 in one View, and in all their natural Motions and anguicular Forms.

B. M.

MATHEMATICAL QUESTIONS Answered.

S. I. R,

IN your Magazine for August, I observe your Correspondents *Shipman* and *Wildbore* differ in their Solutions to *Question 16*, and as the same may be wanted in Practice, and many of your Readers may be doubtful which to rely on, I therefore send you the following

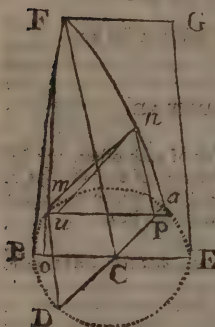
SOLUTION.

BY EMERSON'S *Mechanicks*, the Strength of rectangular Timber is directly as the Breadth and the Square of the Depth, and the Stress is as the Length; therefore the Resistance of the lesser Beam will be $1 \times 1^2 \times \frac{1}{10} = 0.1$, and of the greater Beam $1.5 \times 1.5^2 \times \frac{1}{10} = 0.225$, that is as 4 to 9, each Beam being supposed homogeneous and of no Weight.

H. C—k, R. S.

The same Answer is also given by Mr. VIGER.

Question 20, answered by Mr. WILLIAM ALLEN.



LET AD be at right Angles to BE $= 2r = 4$, and draw CF. Any where in AD, take the Point P, draw PM parallel to CB, and PN parallel to CF, join the Points m, n, and call the perpendicular Altitude Fo $= 6$, a. Then any Triangle Pmn (formed thus) will be similar to the Triangle CBF: This being allowed, call CP, x; then will $PM^2 = rr - xx$, and CB : Fo :: PM : nu the perpendicular Altitude of the Triangle

Pmn, that is, $r : a :: \sqrt{rr - xx} : \frac{a}{r} \sqrt{rr - xx}$, and the

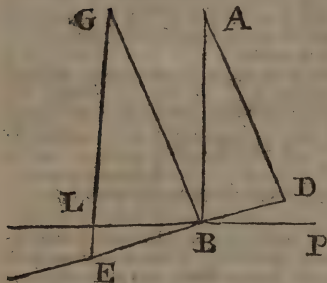
Area of the Triangle Pmn will be $\frac{1}{2} Pm \times nu = \frac{a}{2r} \times \sqrt{rr - xx}$,

which multiplied by x will be $\frac{arx \sqrt{rr - xx}}{2r} = \text{the Fluxion}$

of the Part of the Ungula APmn, and the Fluent will be $\frac{arx}{2}$.

$-\frac{ax^3}{6r}$ = the Solidity of the said Part A P m n, and when x becomes $= r$, then will this last Expression be $\frac{ar^3}{3}$, = the Solidity of half the Ungula, and so the Solidity of the whole will be $\frac{2}{3} ar^3 = 16$ solid Inches.

Question 24, answered by Mr. B. BUTTLER.



LET A represent the Place the Body falls from, LBP the Horizon, EBD the Plane of the Rock, and AD perpendicular thereto; put $a = AB = 3000$ Feet, $d = 32\frac{1}{8}$ Feet the Velocity acquired in one Second of Time, $x =$ the Time of the first Descent, $z =$ the Time of the Flight after the Body quits the Plane, and let $s =$ Sine Ang. $DBA = 75^\circ$; then per Mechanics $1 : d :: x : dx =$ the Velocity acquired in the Time x , and dx^2

$= 2ax$, whence $x = \sqrt{\frac{2a}{d}} = 13.6575$ Seconds,

and $dx = 439.328$ the greatest Velocity possible; now the Body being supposed perfectly elastic will

quit the Plane with the same Force as it falls upon it, making the Angle of Reflection EBG = the Angle of Incidence ABD = 75° ; but by the Resolution of Forces the Force against the Plane ED will be to that, was the Plane in an horizontal Position, as AD to AB, or as s to 1 , and because the Velocities are as the Forces, we have $1 : dx :: s : sdx =$ the Velocity in the Direction BG, and $sdxz$ the Space gone thro' in the Time z , which suppose = BG; but $\frac{dz^2}{2} =$ (the perpendicular Descent by the Force of Gravity in the Time $z =$) GE. Now because the Body in the Time z must again fall to the Plane ED we have

$(GE = GB) \frac{dz^2}{2} = sdxz$, because GE is parallel to AB and the Angle GEB = GBE = ABD; whence $z = 2sx = 26.3844$, and $x + z = 40.0419$ Seconds, the Time required. Also per Trigonometry, as S. EBG = 75° : GE :: S. EGB = 30° : EB = 5663.63 Feet = 1887.87 Yards, the second Descent on the Plane required.

This Question was also answered by Mr. WILDBORE in a general way.

Question 25, answered by Mr. ABRAHAM STONE.

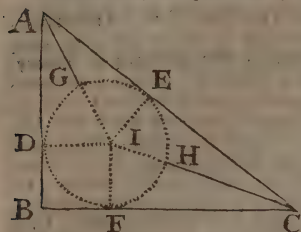
$\sqrt[3]{2.5 \times 2.5 \times 2.5 \times 2000} = 31.498 =$ the Dimensions of the Inside of the Box.

The same, answered by Mr. JOHN GOODHEAD.

SUPPOSING the Oranges to be laid in Rows and exactly on the Top of each other, the Solution, as I take it, will be as follows, viz. Making the Diameter of each Orange = to the Side of it circumscribing Cube 15.625 = the Solidity of one Cube, which multiplied by 2000 gives 31250, whose Cube Root is 31.5 nearly = the Side of the Box.

This Question was also answered by Mr. WILDBORE, Mr. BUTLER, and Mr. SHIPMAN.

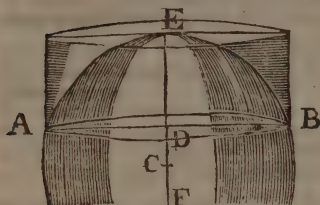
Question 29, answered by Mr. ROBERT SPURLING of Chelmsford.



THE Lines ID, IE and IF, each equal to the Radius of the inscribed Circle, are drawn perpendicular to the Sides of the Triangle; and IA and IC bisect the Angles A and C. Then putting $a = AG$, $b = CH$, $x = IF = ID = IE$, $a + x = AI$, and $b + x = CI$, we have (per 47. Euc. 1.) $\sqrt{aa + 2ax} = AE = AD$, and $\sqrt{bb + 2bx} = CE = CF$, and $\sqrt{aa + 2ax + x^2} + \sqrt{bb + 2bx + x^2} = \sqrt{aa + 2ax} + \sqrt{bb + 2bx}$, i. e. $xx + x + \sqrt{aa + 2ax} + \sqrt{bb + 2bx} = \sqrt{aa + 2ax} + \sqrt{bb + 2bx}$, from which Equation the Value of x may be found; and from which it is likewise evident that $ID^2 + IE \times AC = AE \times EC = \text{Area of the Triangle } ABC$. Q. E. F.

This was answered by Mr. TODD, Mr. CHAPMAN, and Mr. BUTTLER.

Question 30, answered by Mr. JOHN SHIPMAN.



PUT $p = 3,1416$, $x = CE$, and $y = DE$; then $2x - y = FD$, and by the Property of the Circle $2x - y \times y = DB^2$, and $2\sqrt{2xy - y^2} = AB$; hence $2py\sqrt{2xy - y^2} = C$, and $2pxy = s$ by the Question, $\therefore x = \frac{s}{2py}$, which being

wrote for x above, we thence get $2py\sqrt{\frac{s}{p} - y^2}$

$= C$, and $y = \sqrt{\frac{s}{2p} \pm \sqrt{\frac{s^2 - c^2}{4p}}} = 12$, consequently $x = 16,666$, and $2x = 33,333$ the Diameter of the Globe required.

This Question was also answered by Mr. WILDBORE, Mr. GOODHEAD, Mr. TODD, Mr. SPURLING, and Mr. BUTTLER.

New QUESTIONS to be answered.

Question 55. By Mr. SHIPMAN.

A Ship sailed from a Port, in the Latitude $53^\circ 40'$ N. on a certain Course between the North and East, until her Departure was 84 Miles; and after sailing 34 Miles more on the same Course, she was found by Observation to be in Latitude $55^\circ 20'$ N. It is required to determine her Course and Distance made good, without Algebra?

Question 56. By Mr. J. ABBATT, at Longbridge near Preston.

THE Latitudes and Longitudes of three Places upon the Surface of the Earth, viz. London Lat. $51^\circ 30'$ N. Long. $00^\circ 00'$, Warsaw in Poland Lat. $52^\circ 15'$ N. Long. $21^\circ 5'$ E. and Genoa Lat. $44^\circ 30'$ N. Long. $9^\circ 30'$ E. required the Latitude and Longi-

tude of that Place from whence a great Circle may be described to pass thro' the three aforesaid Places?

Question 57.
By Mr. EDWARD CHAPMAN.

WHAT is the Value of y , when $y^{\frac{1}{2}}$ is a Maximum?

Question 58.
By Mr. EDWARD GILLYATT of Covent-Garden.

THE Distance of the Centers of two Circles whose Diameters are 50, being given 30, to find the greatest Parallelogram that can be inscribed in the Intersection, or Space, common to both Circles?

S I R,

S I R,

AS the Observations of the Occultations and Appulses of the Moon to such fixed Stars as have their Places well determined, is the best Method for correcting and compleating the Moon's Theory : It was imagined when Sir *Isaac Newton* first published his Theory, that it was quite correct ; but latter Observations prove it otherwise ; and that it yet stands in need of Correction : But some of our present Astronomers pretend to correct it by rejecting four of Sir *Isaac*'s Equations ; and say their Computations agree better with Observations either in or out of the Syzygies, when they used only the annual, elliptic, and variation Equations. And Dr. *Halley* rejected Sir *Isaac*'s seventh Equation, but if he had used it his Computations in general would have agreed better with his Observations ; for by many Computations I have compared with Observations in and out of the Syzygies, am satisfied, that none of the Equations given by Sir *Isaac* ought to be rejected, but a very material one added to them ; the Quantity of which I have not yet exactly determined ; but hope I shall by comparing a few more good Observations. And as I have constructed a new equation Table to the Sun, and corrected the other Tables ; and almost completed a new Set for the Moon, by which I don't fear of giving her Place, either in or out of the Syzygies, within two Minutes (at most) of a Degree, which is what has not yet been done I believe by any one.

As the ensuing Occultations of *Aldebaran* by the Moon, if the Weather proves clear, will give a fine Opportunity for compleating the last mentioned Equation, the Times of the two next, as Graphically computed from Dr. *Halley*'s Tables, I have here sent you, which, if you please to insert in your next Magazine, it may be a Means to remind such of your Readers as are astronomically inclined, to prepare for the Observations.

Newport, Shrop.

Oct. 14, 1755.

Your humble Servant,

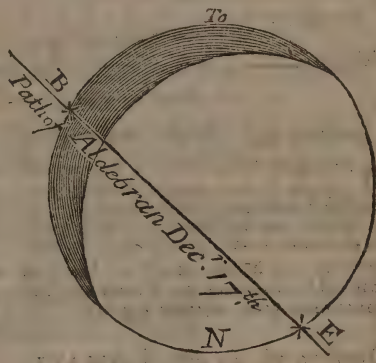
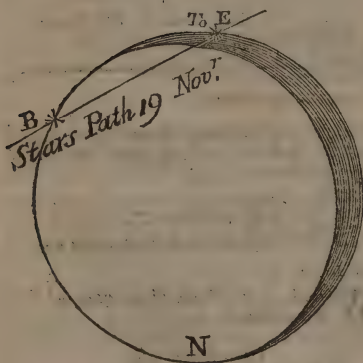
B. TALBOT.

I. On the 19th of November in the Evening, apparent Time,

		London.	Newport.
		H	H
Immerſion	— —	5 37	5 32
Emerſion	— —	6 4	5 54

II. On the 17th of December in the Morning, apparent Time,

Immerſion	— —	1 9	12 54
Emerſion	— —	2 19	2 9



N. B. Our ingenious Correspondents may depend on having their Lucubrations inserted as soon as possible, according to the Order of their Dates, for the future ; and we beg of them not to draw their Schemes too large — Also, all Poems, Essays, &c. will be thankfully received, and inserted if not too long, viz. more than one or two Pages.

E R R A T A. At the End of Question 54. read, And the Force of Gravity to be as the Square of the Distance from the Earth's Centre.

A SONG.

A SONG. By R. R. Set to Music by Mr. MOZZ.

Amoroso. Young Damon would often frequent the green shade, to
 toy with his *Phillis* and humour the maid, to toy with his
Phillis and humour the maid.
 Who lov'd her fond shepherd and thought that the
 day, Who lov'd her fond shepherd and thought that the day too
 hastily fled as he tun'd her his lay.

How blest were their moments, to see the
 fair mead
 With cowslips, and primroses charmingly
 spread?
 The sweet woodland choir would enliven
 the grove,
 And waken the soul to the language of love.

III.

But, ah! like the cloud that envelopes the
 sun,
 By jealousy soon is the lover undone:
 For, while *Damon* tunes up fair *Delia* a song,
 Poor *Phillis* is seen to go weeping along.

IV.

So fair, and so sweet, yet so mournful she goes,
Grief hangs on her cheek like a blight on the rose:
Yet the rose holds its hue, and its fragrance retains,
So blushing and rich, 'as to charm all the swains.

V.

Oh! *Damon*, thou know'st not the pride of the fair;
How quick they resent, and how late they despair:
Thy folly with *Delia* has lost thee thy love;
And *Phillis*, by *Colin*, is led to the grove.

A CONTEMPLATION ON NIGHT.
By the late Mr. Gay.

Whether amidst the gloom of night I stray,
Or my glad eyes enjoy revolving day,
Still nature's various face informs my sense,
Of an all-wise, all-powerful providence.
When the gay sun first breaks the shades of night,
And strikes the distant eastern hills with light,
Colour returns, the Plains their liv'ry wear
And a bright verdure cloaths the smiling year;
The blooming flow'rs with opening beauties glow,
And grazing flocks their milky fleeces show;
The barren cliffs with chalky fronts arise,
And a pure azure arches o'er the skies,
But when the gloomy reign of night returns,
Strip'd of her fading pride all nature mourns:
The trees no more their wonted verdure boast,
But weep in dewy tears their beauty lost.
No distant Landships draw our curious eyes,
Wrapt in night's robe the whole creation lies.
Yet still, ev'n now, while darkness cloaths the land,
We view the traces of th' almighty hand.
Millions of stars in heav'n's wide vault appear
And with new glories hang the boundless sphere:
The silver moon her western couch forsakes,
And o'er the skies her nightly circle makes,
Her solid globe beats back the sunny rays,
And to the world her borrow'd light repays.
Whether those stars that twinkling lustre send,
Are suns, and rolling worlds those suns attend,
Man may conjecture, and new schemes declare,
Yet all his systems but conjectures are;

But this we know, that heav'n's eternal King.

Who bid this universe from nothing spring,
Can at his word bid num'rous worlds appear,
And rising worlds th' all-pow'ful word shall hear.

When to the western main the sun descends
To other lands a rising day he lends;
The spreading dawn another shepherd spies,
The wakeful flocks from their warm folds arise.

Refresh'd, the peasant seeks his early toil,
And bids the plough correct the fallow soil,
While we in sleep's embraces waste the night,
The climes oppos'd enjoy meridian light,
And when those lands the busy sun forsakes,
With us again the rosy morning wakes,
In lazy sleep the night rolls swift away,
And neither clime laments his absent ray.

When the pure soul is from the body flown,
No more shall night's alternate reign be known:

The sun no more shall rolling light bestow,
But from th' Almighty streams of glory flow.
Oh! may some nobler thought my soul employ,

Than empty, transient, sublunary joy!
The stars shall drop, the sun shall lose his flame,

But thou, O God, for ever shine the same.

An Original FRAGMENT.

Written many Years since in the burying
Place of an old ruined Convent in Nor-
mandy.

*** is well—'tis solitude, indeed:
'Tis dreadful—'tis superb! this sacred spot
No mortal man frequents:—beneath this

Which mould'ring threatens ruin on my head,
I'll fet me down: and let no envious eye
Trace out my secret haunt: let none ap-
pear,—

Unless, to make the scene more solemn still,
From out yon tomb it's sheeted tenant rise,
And wail his woes with mine—Love laid him
there—

Rejected love—e'en then more blest than me!
Time might have made him happy, and his
truth—

Have (late) rewarded: but, ah! where's
the hour,

When can it come to bring me peace again?
Can it restore *Amanda*?—Move the grave
To render back to life the beauteous form
Deep, deep enclos'd? Ah! no: she's gone
for ever,—

Oh! gone for
*** ah me!
—Hark! pretty warbler!

Dost thou thy love mourn too? 'Tis *Philomel*.

Whilst all the forest sleeps, she tells her loss,
Her bitter loss like mine: yet she's blest to
Pass but a summer: one short year, and then
She rests—but I must bear this hated being;
Perhaps for me death has an age to wait,
Oh insupportable! the horrid thought
Adds grief to grief: and yet it cannot be:
The wound's too deeply giv'n: 'tis not, not
long

That I can last: then we shall meet again,
Sure, sure we shall: O! might thy virgin
ghost

But blest for once my eyes, might 'st thou but
speak

The words of peace to my distracted soul
I could be happy; I could wait the will
Of fate, but * * * * *

* * * * * I have heard
That maids like thee in shades have oft re-
turn'd

To sooth their lover's sorrows, till the time
Of bliss arrive: but here no comfort dawns,
No white rob'd messenger of peace descends!
Nought to my plaint responsive! but the
scream

Of night's foul bird the owl; and hollow
groans

From yon old fane which ever and anon
With hideous noise comes tumbling down.*
* * * * *

The rest is wanting.

To a Friend, on her Marriage.

By a LADY.

I.

O, my gentle friend, live blest! —
'Tis a dear, but daring trust!
She shou'd happiest be who's best;
Were but love, and fortune, just.

II

But in marriage, maids must steer,
On a dark and doubtful sea:
Where, too often, rocks are near;
When from danger all looks free.

III.

Yet if soul and form can charm,
Youth, and wit, and honour, join'd;
In *Florio*, you are safe from harm:
Mistress of his grateful mind.

IV.

Love, from reason, borrows bliss,
There, secure, your triumph reigns:
He who knows what merit is,
Cannot wound your heart with pains.

Arethusa. A Cantata.

Recitative.

HOW *Arethusa* did first a fountain grow
CERES once wish'd the wond'rous
cause to know.

The streams their murmurs hush'd, and si-
lent flood,
And the bright image issued from the flood.
CERES surpriz'd, with charm'd attention
waits,

When thus the NYMPH her hapless tale re-
lates:

AIR.

Bounteous goddesses of the plain,
While I vent my bosom'd pain
Let my tender plaint endear thee,—
Kindly-pitying goddesses, hear me.

Recitative.

As from the woods of *Symphalus* I came,
Hot with the chase, my spirits all in flame,
The placid river's gentle course I spy'd,
And, leap'd, all thoughtless, in th' flatt'ring
tide;

When from the bubbling stream, surpris'd, I
hear

A hollow murmuring noise, and struck with
fear,

I shriek'd; and darting, reach'd the nearer
side,

When rising from the waves, *ALPHÆUS*
cry'd:

AIR.

ARETHUSA, huntress, fairest
Of the chaste *Diana*'s train,
Nymph, of all her nymphs the dearest,
Must your lover sigh in vain?

Recitative.

I frighted, fled, *Alphæus* me pursu'd,
Nor could I gain the covert of the wood.
Spent with the labour of the flight, I said,
"I'm caught, *Diana*! Oh! thy huntress
aid!"

AIR.

Aid, aid thy helpless nymph,
Who fain would be
Immortal, as thyself,
In chastity!

Recitative.

My pray'r the goddesses heard, and deign'd to
shroud,

My body mounting, in a misty cloud;
Instant I vanish'd from *Alphæus*' sight:
The god, astonish'd at my sudden flight,
The watry column views with fast-fix'd eyes
And "*Arethusa! Arethusa!*" cries:

AIR.

The hills, the dales, the woods,
Air, sea, and startled floods,
Alphæus' plaints rebound:

Nymphs of the plain, and Naiads of the
brook,

As list'ning to his moan, their haunts for-
sook,

And in soft soothing strain
Of luckless love complain,

And, *Arethusa*, echoes all around.

Re-

Racitative.

Mad with despair, up in the clouds, he flew,
And found me, fear-dissolv'd into a dew;
The god enrag'd, now quits his form divine,
And mingles all his river-streams with mine;
Down we together sunk, together rose,
Where now, behold, this limpid fountain
flows.

Ceres laments the nymph's imprison'd state,
And thus applies, to sooth her hapless fate:

AIR.

Glory, virtue, honour, here
Crown'd for aye the circling year;
While the sparkling stars shall shine,
Phebus ever roll divine;
While the planets in their course,
(Sprung from the eternal source)
Dance harmonious in the skies,
Fame shall thee celestialise;
And (while told thy virtue far)
Aretusa shine a star.

Epitaph on two Sisters (Twins) buried together.

FAIR marble, tell to future days
That here two virgin-sisters lie,
Whose life employ'd each tongue in praise,
Whose death drew tears from ev'ry eye.
In stature, beauty, years, and fame
Together as they grew, they shone;
So much alike, so much the same
Death quite mistook 'em both for one.

On Miss Talbot conversing with a Lawyer at Bath.

FROM weight of fordid venal cares,
The wearied pleader flies:

From inns of court to Bath repairs,
To fall by radiant eyes.
Where he goes a TALBOT's found
In brightest lustre plac'd;
For wisdom on the bench renown'd,
And here with beauty grac'd.
Nor boasts she only shape and air,
The arts her mind adorn:
The charms of this accomplish'd fair
A single triumph scorn.
Pleader, behold thy laws are vain
In liberty's defence;
For none can fly the double chain
Of beauty and of sense.

K.

A SONG.

WHAT music dwells in *Polly's* frame
Let her own voice declare.
What eyes has she for *Cupid's* flame,
O what a heav'n is there!
Whoever hears the tuneful strain
With rapture must admire,
Whoever hears (alas poor swain!)
Her slave he must retire.
Not *Venus*, had she with her charms
The muses' numbers join'd,
Could give the heart more swift alarms,
Or sooner win the mind.
Nor only with her voice she wounds;
Who dares to meet her eyes,
(Tho' not enchanted by sweet sounds)
Their pow'r reveres and dies.

July 3, 1755. J. Walsh.

A CHRONOLOGICAL MEMOIR of Occurrences.

For OCTOBER 1755.

THE Prince of Morocco has made himself Master of the two Towns of Sallee, and laid a Fine of 70,000 Ducats on the Inhabitants; 10,000 Ducats on each Christian Merchant's House; robbed and plundered entirely that of Mr. Mountenay, a Subject of England, and afterwards ordered him to be bastinadoed to death, declaring that he would give the same Treatment to Consul Petrigrew, if he got him into his Custody, which it is hoped will not happen, as Commodore Edgcombe and another Man of War sailed Yesterday for Tetuan to demand him. The Prince has ordered his two Cruizers at Sallee to be immediately sent to Sea, and to take all the English they can meet with.

It is said he intends marching towards

Azila, Tangier, and Tetuan, with an Army of near 40,000 Men, which has greatly alarmed the whole Coast.

Letters from Madrid take Notice, that the Emperor of Morocco is not for breaking the Peace with England; but he has delegated too much Power to his Son, and knows not how to resume it.

At Constantinople the Grand Vizier and Reis Effendi have been deposed, and the new Grand Vizier has entered upon his Ministry in a generous and polite Manner, by obtaining for them leave to retire to whatever City of the Empire they shall think proper, provided it be seven or eight Days Journey from the Metropolis.

B b

Ma-

Magazines are preparing, in Livonia and Courland, for the Subsistence of a Body of 73,450 Russians which Great-Britain hath taken into its Service. Their Quarters are so distributed, that they may be assembled, in a very short Time, in three Divisions, and form an Army in three or four Weeks. The Draught Horses for the heavy Baggage and the Artillery are already ordered in the Heart of the Empire.

The French, in several of their Ports, are with the greatest Dispatch fitting out all the Vessels that can be rendered fit for Service; and are at the same Time busy in strengthening all their Forts, and rebuilding the Fortifications of Dunkirk. While many of their Merchants are entirely ruined, and the rest dispirited, at the great Number of their Ships taken by the English.

L O N D O N.

Sept. 25. **SIR** Richard Glynn, Alderman of Dowgate Ward, was elected President of Bridewell and Bethlem Hospitals.

At a general Court of the Bank of England, a dividend of $2\frac{1}{2}$ was declared for the half Year's Interest ending at Michaelmas, on the capital Stock of the Company.

28. As Mr. Smart, of Hackney, was coming out of Church, a Person in a Hurry told him, that his House was on Fire; on which he hastened home; but found it was a Chimney in the next House, and that his own was in no Danger: However the Fright had such an Effect on him, that he sunk down on a Chair, with these Words in his Mouth, *This Fire will be my Death*, and immediately expired.

29. Slingby Bethel, Esq; was elected Lord Mayor.

The Men belonging to his Majesty's Yachts were discharged; at which Time Sir Piercy Brett, Commander of the Carolina, informed his Men that he was going to take on him the Command of one of his Majesty's Ships of War, and told them, that if they would sail with him, they should have all the Encouragement in his Power to give them; on which they all entered immediately, except three, whom he left to take Care of the Yacht.

Capt. Campbell, of the Mary, who is made Commander of the Assistance Man of War, now lying at Plymouth, on offering the same Encouragement, had all entered, except the same Number left to take Care of the Yacht. After they had entered, he acquainted them that he had hired a Wagon to carry them and their Baggage to the Ship; and, that nothing might be wanting, he would accompany them himself.—From Commanders like these, who engage so firmly the Affections of their Men, what may we not expect?

30. Alderman Wm. Beckford and Ivy Whitbread, Esq; were sworn in Sheriffs of London and Middlesex.

At a General Meeting of the Royal College of Physicians for their anniversary Elections, Dr. Reeve was elected President; Sir William Browne, Dr. Dawson, Confillarii; Dr. Heberden, Dr. Coxe, Dr. Pitcairn, Dr. Akenfide, Censors; Dr. Wilbraham, Treasurer; Dr. Lawrence, Register, for the Year ensuing.

Oct. 1. There happened a great Riot at an Alehouse near the Seven Dials, where a Fifteen-penny Lottery was drawing; and most of the Tickets coming up Blanks, the Adventurers were so enraged, that they fell on a Man concerned in the Management, and used him so ill that he died soon after. Two Persons are committed to New Prison on this Account.

The Wife of a Carpenter in Ratcliff Highway (a Woman in Years) having Words with the Journeyman, snatch'd up a Chisel and stabbed him to the Heart. The Occasion of this unhappy Action is said to have been a Love Affair between the young Fellow and the Daughter, who, on that Account, had been lately sent into the Country.

2. One Mr. Hardcastle, was attacked at Night near Westminster Infirmary by six Women, who robbed him of Half a Guinea, and beat him in a most barbarous Manner.

3. Two Youths were apprehended in the Gallery of Covent-garden Play-house for throwing Walnuts, and shooting Peas thro' a Tin Trunk in the Faces of the Audience, and for this scandalous Kind of Gallery Wit, were committed to New Prison.

4. 5000 Ounces of Silver Coin were shipped for Holland, 18000lb. of Gun-powder for Carolina, and 75000lb. for the East India Company's Settlements.

6. The drawing of the State Lottery began at Guildhall.

11. Admiral Hawke struck his Flag in Portsmouth Harbour.

13. This being the Assembly Night on Epping Forest, several Gentlemen and Ladies had ordered their Servants to attend with Fire-Arms; but some of the Company

ny staying late, the Servants diverted themselves with reconnoitring the Forest and firing their Pistols, &c. But unhappily for a Servant of Capt. Bateman's, who met Mrs. Turner, and a Person whom she had hired to conduct her home; thinking he was one of his Party, bids him stand, and fired his Pistol; upon which the Man, thinking him in Earnest, immediately shot him, and he now lays at a House on the Forest, with very little Hopes of his Recovery. An eminent Alderman of this City has examined the Servant, and he readily owned that his Folly had brought this Disaster upon him, and that he hoped the Person would come to no Trouble for what he had done, and that he forgave him heartily. He is since dead.

14. Admiral Byng sailed from Spithead on Tuesday with eight Ships of the Line, and is to be joined by Eight more at Plymouth.

16. Orders arrived at the Yard at Chatham, to send all the Artificers that could be spared on Board the Sovereign, First Rate, and Princess Caroline, Second Rate, and to work Night and Day, to get them ready to lie as floating Batteries, between the Mouth of the River Thames and Medway; and at Noon upwards of 200 Shipwrights were sent on board.

19. Orders arrived at the Commissioner of Portsmouth's Office, that he should forthwith form the Dockmen into a Regiment and discipline them as in the late War, when there was no Regiment in England excelled them in their Exercise or Appearance; the Commissioner is Colonel, the Builder, Lieutenant-Colonel, the Clerk of the Cheque, Major, and the rest of the Officers, Captains, Lieutenants, &c.

This Night one of the Bridewell Boys having picked up a Woman of the Town, she wheedled him to her Lodgings in Star-court, Newton's-lane, and robbed him of the few Pence he had about him. Some others of the Bridewell Crew being informed of what had happened, assembled in a Body to the Number of eighteen, and having found out the unfortunate Woman, almost killed her, and were about to pull down the House, after having made a great Riot in the Neighbourhood, and terribly beat several Persons who came to oppose them.

21. A Proclamation was issued out in the London Gazette, for prohibiting the Exportation of Gunpowder out of this Kingdom, for three Months to come.

The Cambridge Man of War was launched at Deptford; at which Time, a Man genteely dressed, was detected in picking a Gentleman's Pocket; and, insisting strongly upon his Innocence, he was searched, and seven Handkerchiefs found upon him. This

much incensed the Populace, so that they stripped him of his Coat, Waistcoat and Shirt, and tying a Rope round him, ducked him in the River for some Time, and then delivered him to the Yard's-men, who took him to the Pitch and Tar-tub, and daubed his Body therewith, after which they covered him over with Oakham, and rendered him a most extraordinary Spectacle.

LIST of SHIPS taken from the French, continued.

Sent into Plymouth.

The Lunete, from Martinico to Dunkirk.

Amiable, from Havre for Bourdeaux.

Jafon, from Martinico for Nantz.

Laurel and Gracious, both from Newfoundland.

Duke of Daigquets, from St. Domingo.

Amiable, from Newfoundland for Havre.

Placiliare, from Cape François for Nantz.

Marianne, from Newfoundland for St. Maloes.

Esperance, from St. Domingo for Havre.

Katharine, from Newfoundland for Havre.

Patiponne, from Newfoundl. for Dieppe.

Beloiseau, from Canada for Havre.

Mary Elizabeth, from St. Martins.

St. Lewis, from Calais.

Dom Deuc, from Newfoundland for Rochelle.

Sophia, from Bourdeaux for Martinico.

Hardie, from Newfoundland for Rochelle.

Esperance, from Bayonne for Bilboa.

Lamayone, from Newfoundland.

Charles and Mary, from Newfoundland for St. Maloes.

Mary François, from Rochelle for Dunkirk.

Dudec Bourgogne, from Martinico for Havre de Grace.

Helena, from Rochelle for Dunkirk.

Mary, from Louisbourg.

François, from Newfoundland.

Madelam, from Newfoundland for Dieppe.

Hannibal, from Newfoundland for St. Maloes.

St. Esprit, from Amsterdam for Bayonne.

La Badine, from Leogane, with Sugar, Coffee, and Indico, for Nantz.

Amiable Maria, from Cape François for Dunkirk.

St. John and the Robert, both from Newfoundland for Grandeville.

Amiable Union, from Newfoundland for Havre.

Four Martinico Ships.

Marshall Saxe, from Newfoundland for Honfleur.

Jentill Margaretta, and Jacob and Mary, from Newfoundland for Grandeville.

Triumph and John Henrietta, from Newfoundland for Havre.

Happy Maria, from Martinico for Honneur.

Sent into Portsmouth.

Mackverzee, from Canada for Brest.

Mary Magdalen, from Newfoundland for Granville.

John and Katherine, from Newfoundland for Granyille.

Mary Leuce, from Rochelle for Martinico.

Le Beau-fils and l'Astre, from Newfoundland for Nantz.

L'Hercule, from Port l'Orient for Guiney.

L'Estria, from Senegal for Port l'Orient.

A fine St. Domingo Man, said to be worth 25,000*l*.

Solide, from St. Domingo for Havre.

Charles, from St. Domingo for Nantz.

Expedition, the Nouvelle Concorde, the Purite, and the Count de Maurepas, from St. Domingo for Bourdeaux.

Michael and Francis, from Ireland for Sable Dolans.

Eagle, from Lisbon for Rochelle.

St. Nicholas, from Newfoundland for Dieppe.

Victory, from Martinico for Havre.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane.

Covent-Garden.

Sept. 22. *Beggar's Opera.*

23. Ditto—*Duke and no Duke.*

24. *Suspicious Husband.*

25. Ditto—*Anatomist.*

26. *Conscious Lovers.*—Chaplet.

27. Ditto—Ditto.

29. *Mourning Bride.*—Lottery.

30. Ditto—Ditto.

Oct. 2. *Stratagem.*—King and the Miller.

3. *Drummer.*—*Fortunatus.*

4. *Hamlet.*

6. *Fair Quaker of Deal.*—King and the Miller.

7. Ditto—Ditto.

8. *Romeo and Juliet.*

9. *Fair Quaker of Deal.*—Intriguing Chamber-maid.

10. *Macbeth.*—Lying Valet.

11. *Fair Quaker of Deal.*—*Fortunatus.*

13. *Oroonoko.*—*Anatomist.*

14. Ditto—Devil to pay.

15. *Fair Quaker of Deal.*—*Fortunatus.*

16. *Oroonoko.*—Lottery.

17. *Rehearsal.*—King and the Miller.

18. Ditto—Chaplet.

20. *Fair Quaker of Deal.*—*Fortunatus.*

21. *Mourning Bride.*—*Englishman in Paris.*

22. *Suspicious Husband.*—Intriguing Chamber-maid.

23. *King Richard III.*—*Anatomist.*

24. *Earl of Essex.*—Lethe.

25. Ditto—*Fortunatus.*

Non Juror.—*Damon and Phillida.*

Miser.—*Mock Doctor.*

Miser.—Ditto.

Funeral.—*What do you call it.*

Merchant of Venice.—Lottery.

Love for Love.—*Double Disappointment.*

Earl of Essex.—*Cheats of Scapin.*

King Henry IV.—Lottery.

Ditto—Ditto.

Constant Couple.—*Contrivances.*

Beggar's Opera.—*What d'ye call it.*

Committee.—*Contrivances.*

Romeo and Juliet.—Lottery.

Provok'd Husband.—*Lover his own Rival.*

Merry Wives of Windsor.—*Harlequin Skeleton.*

City Wives Confederacy.—Ditto.

Stratagem.—Lottery.

Earl of Essex.—*Harlequin Skeleton.*

BIRTHS.

Sept. 27. Rt. Hon. the Lady Lucy Howard delivered of a Daughter.

Oct. 4. Lady of the Rt. Hon. the E. of Dartmouth—of a Son.

MARRIAGES.

Oct. 4. John Lawton, Esq; Brother to Sir Hen. Lawton, Bart. married to Miss Betty Selby, Daughter of the late W. Selby, of Northumberland, Esq;

8. Sir Tho. Mackworth, of Huntingdon, Bart. to Mrs. Walter, Relict of the late Rev. Mr. Walter of Great Stoughton in Huntingdonshire.

11. The Rev. Dr. Cotton, to Miss Hester Maria Tyrrell, sole Daughter and Heiress of the late Sir Charles Tyrrell, of Thornton, in the County of Bucks, Bart.

Rt. Rev. the Ld. Bishop of Carlisle, to Miss Lucy Digby, youngest Sister, and one of

of the Coheireffes of the late John Digby, Esq; of Mansfield-Woodhouse, Nottinghamshire.

DEATHS.

Sept. 17. John Idle, Esq; Lord Chief Baron of the Exchequer in Scotland.

Mr. John Tallis, at Burcot, Worcester-shire, aged 80, who for 30 Years past had lain in bed, without rising from it.

18. Lady of Francis Reynolds, Esq; Member for Lancaster, and sister to Lord Ducie.

Mr. Rawlins, the most noted Rope-maker in England, at Limehouse.

25. Sir John Trevelyan, Bart. in the 89th Year of his Age, at his Seat at Nettlecombe, Somersetshire.

27. Dr. Matthew Lee, an eminent Physician.

Mr. Sheron, Surgeon of St. Luke's Hospital.

The Relict of the late Sir Rob. Godschal, Lord Mayor of London.

Oct. 2. Sir John Frederick, Bart. at his Seat at Hampton-court.

The Rey. Dr. Johnson, Chancellor of Landaff, at Whitehall.

3. The Rev. Dr. White, Residentiary of Wells, and Rector of Christian Milford in Wilts.

Hon. Luke Gardiner, Esq; Representative for the Borough of Thomas Town, in the County of Kilkenny.

9. Tho. Wallace, Esq; only Son to Sir Tho. Wallace, Bart.

The Rt. Hon. the Lady Feversham, Daughter of George Lord Willoughby de Broke, Dean of Windsor.

Martin Groundman, Esq; Governor of Cowes-castle, in the Isle of Wight.

16. Hon. Col. Bingley, of the 2d Regiment of Foot Guards.

Civil and Military Preferments.

Commodore Arthur Scott, Commissioner of the Navy at Chatham, appointed Comptroller of the Navy.

Capt. Edw. Falkingham, to succeed Commodore Scott, as Commissioner of the Navy.

Capt. Obrian, late Captain of the Colchester.

Capt. Edm. Townley, Commander of the Ferret Sloop.

Hon. Capt. Rob. Digby, to be Commander of the Solebay.

Capt. John Campbell, of the Mary Yacht, to command the Assistance.

Alexander Murray, Esq; to be Major, and likewise Capt. of a Company.

James Cuninghame, Esq; to be a Capt. and, Erasmus John Phillips, Gent. to be a Lieutenant in the Regiment of Foot, commanded by Hugh Warburton, Esq; Major General of his Majesty's Forces.

Dudley Ackland, Esq; to be a Captain,

Samuel Buck Veale, Esq; to be Captain Lieutenant, and,

Alexander Rigby, Gent. to be a Lieutenant in the Regiment of Foot, commanded by Rob. Manners, Esq; commonly called Ld. Rob. Manners.

John Witmore, Esq; to be Captain Lieutenant, and,

Edw. Arblaster, Gent. to be a Lieutenant in the Inniskilling Regiment of Dragoons, commanded by James Cholmondeley, Esq; Lieut. Gen. of his Majesty's Forces.

Isaac Hamilton, Gent. to be a Lieutenant in the Royal Irish Regiment of Foot, commanded by John Folliott, Esq; Major General of his Majesty's Forces.

— Craskell, Gent. to be a Lieutenant in the Regiment of Foot, commanded by Col. Geo. Walfsh.

David Ross, Esq; to be a Captain,

Edw. Barry, Esq; to be Captain Lieutenant, and,

James Smith, Gent. to be a Lieutenant in the Regiment of Foot, commanded by Geo. Bentinck, Esq; commonly called Lord Geo. Bentinck.

James Harrington, Esq; to be Lieutepant to the 2d Troop of Horse Grenadier Guards. And,

James Beslenden, Esq; to be Guidon to the said Troop, and to take Rank as Capt. of Horse.

Mr. Carey, Son to the Rt. Hon. the Lord Visc. Falkland, to be Capt. of a Company of Foot at Gibraltar.

ECCLESIASTICAL PREFERMENTS.

Rev. Thomas Newton, B. A. presented to the Rectory of Bassett Lodney, Lincolnshire.

— Crouch, A. M. to the Rectory of Upton Lovel, Wiltshire.

Rob. Norton, M. A. to the Rectory of Hangleton, Suffex.

Rich. Joyce, B. A. to the Vicarage of Wyland Peicerel, Devonshire.

Rich. Berney, to the Rectory of Swanton Abbots, Norfolk.

James Leslie, D. D. to the Bishoprick of Limerick, with the united Bishopricks of Ardferit and Aghadoc, together with the Rectory of Traderie, in the Diocese of Killaloe, in Ireland.

John Kippey, M. A. to the Rectory of Lufby, and Vicarage of Skerdelby, in Lincolnshire.

Mr. Watson, to the Rectory of Aston, Yorkshire.

Mr. Pennington, to be Curate of Sutton, near Deal.

B—KR—TS.

Sept. 27. John Canham, of St. Dunstan in the East, London, Merchant.

Thomas

Thomas Berresford, of Gorton, Manchester, Innkeeper.

30. Thomas Davies, of St. Clement Danes, Hofer and Haberdasher.

Oct. 4. Henry Grubb, of Hartshorn-Lane, Middlesex, Woodmonger.

Paul Metevier, of London, Merchant.

11. Edward Burkitt, of Cheap-side, London, Hofer,

Robert Lucas, of Yarm in Yorkshire, Mealman.

John Hayman, of Chudleigh, Devon, Timber-Merchant.

18. John Sale and Thomas Baynes, of Mitcham in Surry, Callico-Printers.

George Green, of Beaufort-Buildings, Dealer in Coals.

BILL of Mortality from Sept. 16. to Oct. 21.

Buried		Christened	
Males 918	} 1866	Males 724	} 1390
Females 948		Females 666	
Under 2 years old 762		Buried,	
Between 2 and 5 172		Within the walls 162	
5 and 10 — 55		Without — 434	
10 and 20 — 37		Mid. and Surry 887	
20 and 30 — 136		City & Sub. West. 383	
30 and 40 — 158			
40 and 50 — 163			1866
50 and 60 — 154			
60 and 70 — 125		Weekly Sept. 23. 352	
70 and 80 — 65		30. 367	
80 and 90 — 34		Oct. 7. 384	
90 and 100 — 5		14. 377	
100 and 109 — 0		21. 386	
	1866		1866

COURSE OF EXCHANGE.

London, October 24, 1755.

Amsterdam, ———	36	4	2½	Uf.
Ditto at Sight, ———	36	1		
Rotterdam, ———	36	5	2½	Uf.
Antwerp, ———				no Price
Hamburgh, ———	34	9	2½	Uf.
Paris, 1 Day's Date, ———	31		1½	
Ditto, 2 Usance, ———	30		1½	
Bourdeaux Ditto, ———	30		1½	
Cadiz, ———	38		1½	
Madrid, ———	38		5a¾	
Bilboa, ———	38		1½	
Leghorn, ———	47		7	
Naples, ———				no Price
Genoua, ———	47		1½	
Venice, ———	49		2a¾	
Lisbon, ———	5s.	4d.	1½	
Porto, ———	5s.	3d.	5	
Dublin, ———	8		2½	

Observat. on the Weather, at Temple Bar.

	Baro- meter.	Therm.	Pluvia- meter.	Hygro- meter.
Sept. 26	29 : 6	27	6 : 5	70 Moist.
27	29 : 4½	28½	30 : 4	88
28	29 : 7¾	26½	0 : 0	82
29	29 : 4	27	6 : 3	82
30	29 : 6	27	3 : 1	57
Oct. 1	29 : 6½	27	4 : 8	46
2	29 : 8½	26½	0 : 0	64
3	29 : 5	27½	4 : 9	84
4	29 : 8½	26½	0 : 0	69
5	30 : 0¾	27¾	42 : 8	89
6	30 : 1	30	22 : 4	85
7	30 : 0½	30	0 : 0	84
8	30 : 1	27¾	4 : 5	63
9	29 : 9¾	27½	0 : 0	71
10	29 : 8½	26	4 : 7	6 D.
11	29 : 7¾	23½	0 : 0	54 M.
12	29 : 7¾	22	23 : 9	72
13	29 : 8	24	2 : 4	78
14	29 : 8	24½	0 : 0	86
15	29 : 4½	25¾	2 : 4	84
16	29 : 3½	25½	3 : 8	81
17	29 : 5¾	25¾	0 : 8	83
18	29 : 6½	26	0 : 4	85
19	29 : 6¾	28½	17 : 7	89
20	29 : 9½	26	4 : 0	85
21	29 : 9¾	25½	0 : 0	82
22	29 : 6½	24½	0 : 0	79
23	29 : 8½	22	9 : 8	56
24	29 : 6	24	8 : 8	78
25	30 : 0	23	0 : 0	55
26	30 : 2	22	1 : 9	58
27	30 : 2	24	0 : 0	81

BOOKS published since our last.

BATES's Reply to Sharp's Review. Part 2.

Withers.

Country Dances, Twenty-four of them, for the Year 1756, with Directions for each Dance; to be continued yearly. 6d. Thompson.

Country Dances (24) for the same Year. 6d. Walsh.

An enigmatical Question, &c. 1s. Keith.

A free and necessary Enquiry, &c. relating to the Liturgy of the Church of England. 1s. 6d. Baldwin.

An Essay on the Gout and all gouty Affections incident to Mankind. By Nicholas Robinson, M. D. Member of the Royal College of Physicians, and Physician to Christ's Hospital. 2s. 6d. E. Robinson.

In this Essay, the Doctor gives Directions in Relation to the Air, Diet, Motion, Rest, and the Passions. As to the first, he advises the Patient to remove, as soon as possible, from London, to Highgate or Hampstead, and when the Weather permits, to breathe the fresh Air in a Morning; or, on Account of the Waters, to Bath; but if the Patient be in the decline of Life, he thinks this Island too cold, and advises them to remove to Lisbon, to the South of France, or to Naples. As to Diet, he advises thin Panada, Water-gruel, Sack-whey; or if the Body be too lax, Whey turned with Red-port. He also recommends Chocolate, Tea or Coffee, with Bread and Butter for Breakfast: And particularly Bucean-tea, but the Tea is to be made with Bristol Water, and if the Body be laxative, with Dulwich Water. In the Remission of the Fits, he allows Milk-pottage, Seago, Salop, or Chicken-broth for Breakfast; and for Dinner, Chicken, Rabbit, or other white Meats; but severely prohibits high Sauces, and spiced Gravy: In the Afternoon, Jelly with a little White-wine; and for Supper, a Mefs of Panada, or Rice-gruel: For Drink at Meals, a Pint of Red-port to a Quart of Bristol Water. He advises that no Exercise should be used during the Fit, and that in the Intervals, it should be moderate. He also recommends

the Flesh-brush, and keeping the Passions quiet and undisturbed.

Higgs's Essay on venereal and scrophulous Disorders. 1s. Bladon.

Humerous Dialogues between a French Dancing-master and an English Sailor. 6d. Corbet.

A Letter from a Member of Parliament to his Grace the Duke of ****, upon the present Situation of Affairs. 6d. Cowper.

Two Letters to the Authors of the monthly Review, occasioned by their Account of the Memoirs of several Ladies of Great Britain. By two Ladies. 6d. Noon.

An Ode on his Majesty's Return. By Timoleon Brecknock. 6d. Swan.

A Sermon preached at the Cathedral of Gloucester, at the opening of the Infirmary, August 14. By Geo. Talbot. 6d. Doddsley.

A Sermon before the Free-masons at Philadelphia. By Mr. Smith. 6d. Griffiths.

A Sermon on the Death of the Rev. Mr. James Read. By G. Benson, D.D. 6d. Waugh.

Sessions Paper in three Parts, 4d. each. Cowper.

The Sailor's Song to the South. A New Ballad. 6d. Doddsley.

Tom Brown's complete Jester: Or, Wit's Merry Companion. 1s. Henderson.

Trial of William Turton, Esq; for the Murder of Thomas Holloway.

A List of Foreign BOOKS.

Observationes sacrae in Novi Fœderis Libris ex Auctoribus potissimum Græcis & Antiq̃uitatibus Wratisslaviae, 2 Vol. 8vo. Breslau. This Work contains a great Number of philological and critical Observations, in which the Manner of speaking, used by the Writers of the sacred Scriptures, are explained, by Examples drawn from antient Greek Authors.

La Physique de l'Ame humaine, par M. Godart. Berlin. The natural History of the human Soul. By M. Godart, M.D.

Essai sur l'Etat du Commerce d'Angleterre. Paris. An Essay on the State of Commerce in England, 2 Vol. 12mo.

Tableau du Gouvernement actuel de l'Empire d'Allemagne. Paris. An Account of the Government of the German Empire.

Petit Trésor de la Latinité puisé dans les Meilleurs Auteurs. This is a small Dictionary, containing a Collection of Phrases in the French Language, expressed in the Idiom of the Latin Tongue.

Manuel Lexique ou Dictionnaire portatif des Mots François dont la Signification n'est pas familière à tout le monde. A Pocket Dictionary of the French Words, whose Signification is not commonly known, 2 Vol.


8vo. by l'Abbe Prévôt. This Work is designed for the Use of those who are not versed in the antient and modern Languages, or the Knowledge of the Sciences.

L'Art du Chant. The Art of Singing. By M. Berard. The Author considers the Voice in Relation to Singing; to Articulation, Pronunciation, and the Perfection of Singing.

Essai sur l'Art de la Guerre. An Essay on the Art of War. By Count Turpin de Crisse, Brigadier of the Armies of the French King, and Maître de Camp of a Regiment of Hussars. 2 Vol. Though this Work has the modest Title of an Essay, it may be considered as a complete Treatise. It is filled with Precepts and Examples ranged in a judicious Order. The Style, though proper for the Subject, is that of a Man of Quality, who is a Friend to the Muses, and an Enemy to whatever is low and trifling.

Voyage Pittoresque des environs de Paris. A picturesque Description of a Journey into the Country round the City of Paris: Containing a View of the Royal Palaces, Castles, and other Places situated within fifteen Miles of that City. By Mr. d'Argenville. Paris,

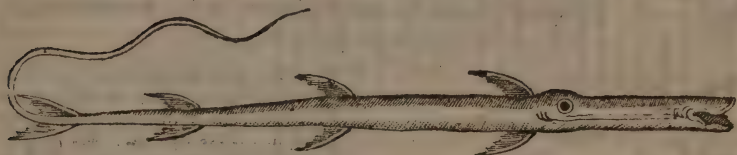
EACH DAY's Price of STOCKS, in OCTOBER 1755.

 Books shut, is signified thus,

BA N K Stock.	E-India.	S. Sea old S. Sea An.	S. Sea An.	3 1/2 Ba. An	3 1/2 Ba. An	3 1/2 per C.	3 per Cent	3 per Cent	India Bon	B. Cir. per	Lot.	Tick
25	No Price.	No Price.	94 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	43s	5 0	9 13 6	25
26	Do	104 1/4	95 3/4 a 5	93 3/4	93 3/4	93 3/4	93 3/4	93 3/4	43s a 44	5 0	9 13 6	26
27	Do	No Price.	93 3/4	93 3/4	93 3/4	93 3/4	93 3/4	93 3/4	Do	5 0	9 13 6	27
28	No Price.	104 1/4 a 1	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	5 0	9 13 6	28
29	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	44s	Do	9 16 0	29
30	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	9 15 0	30
31	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	45s a 47	Do	9 12 6	31
32	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	45s	Do	9 10 6	32
33	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	9 8 0	33
34	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	9 5 0	34
35	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 0 0	35
36	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	45s	Do	9 0 0	36
37	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	46s	Do	9 0 0	37
38	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	46s a 47 4	5 0	9 6 0	38
39	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48 4	7 6	9 6 0	39
40	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	46s	Do	9 5 0	40
41	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 0 0	41
42	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	42
43	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 19 0	43
44	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	44
45	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	48s a 50 4	5 0	10 00 0	45
46	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s	Do	10 1 0	46
47	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 8 0	47
48	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 9 0	48
49	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s a 48 4	5 0	10 00 0	49
50	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 6 0	50
51	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	51
52	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 19 0	52
53	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	53
54	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	48s a 50 4	5 0	10 00 0	54
55	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s	Do	10 1 0	55
56	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 8 0	56
57	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 9 0	57
58	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s a 48 4	5 0	10 00 0	58
59	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 6 0	59
60	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	60
61	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 19 0	61
62	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	62
63	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	48s a 50 4	5 0	10 00 0	63
64	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s	Do	10 1 0	64
65	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 8 0	65
66	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 9 0	66
67	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s a 48 4	5 0	10 00 0	67
68	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 6 0	68
69	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	69
70	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 19 0	70
71	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	71
72	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	48s a 50 4	5 0	10 00 0	72
73	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s	Do	10 1 0	73
74	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 8 0	74
75	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 9 0	75
76	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s a 48 4	5 0	10 00 0	76
77	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 6 0	77
78	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	78
79	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 19 0	79
80	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	80
81	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	48s a 50 4	5 0	10 00 0	81
82	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s	Do	10 1 0	82
83	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 8 0	83
84	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 9 0	84
85	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s a 48 4	5 0	10 00 0	85
86	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 6 0	86
87	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	87
88	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 19 0	88
89	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	89
90	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	48s a 50 4	5 0	10 00 0	90
91	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s	Do	10 1 0	91
92	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 8 0	92
93	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 9 0	93
94	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s a 48 4	5 0	10 00 0	94
95	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 6 0	95
96	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	96
97	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 19 0	97
98	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	98
99	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	48s a 50 4	5 0	10 00 0	99
100	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s	Do	10 1 0	100
101	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 8 0	101
102	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 9 0	102
103	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s a 48 4	5 0	10 00 0	103
104	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 6 0	104
105	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	105
106	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 19 0	106
107	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	107
108	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	48s a 50 4	5 0	10 00 0	108
109	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s	Do	10 1 0	109
110	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 8 0	110
111	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	Do	Do	10 9 0	111
112	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	50s a 48 4	5 0	10 00 0	112
113	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 6 0	113
114	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	114
115	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s a 48	Do	9 19 0	115
116	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a 5	93 3/4	93 3/4	47s	Do	9 19 0	116
117	No Price.	No Price.	95 3/4 a 5	92 1/2	92 3/4 a 5	92 3/4 a						

Miscellaneous Correspondence,
in Prose and Verse.

For *NOVEMBER*, 1755.



A Description of the TOBACCO-PIPE FISH.

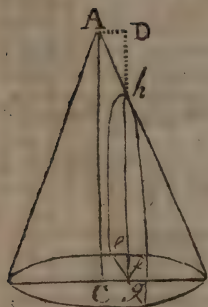
THIS being the only one of the Kind I have seen, I cannot ascertain the usual Size of it. This was almost a Foot in Length; the fore Part from the Nose to half Way the Body, near of an equal Bigness, from which it grew tapering to the Tail, which was forked, and from which grows a slender taper Whip four Inches long of the Consistence

of a Whalebone; the Mouth narrow, from which to the Eyes was almost three Inches. On the Back were placed three small Finns at equal Distances; under the Belly and opposite to those of the Back were also three of the like Finns; the whole Fish was of a brown Colour. They are sometimes taken on the Coasts of *Jamaica*, whence I had this.

Catesby's Natural Hist. of Carolina, p. 17.

MATHEMATICAL QUESTIONS *Answered.*

Question 18, answered by Mr. H. C. R. S. only.



LET $CB = 8 = b$, $AC = 20 = a$, the Section $efgb$, the required Section which by Conics will be an Hyperbola, and, by *Art. 157. Simpson's Fluxions*, the Area $Befg \times \frac{a}{3}$ less the Area $efgb \times \frac{AD}{3}$ by the Nature of the Question

will be $= \frac{p^2 b^2 a}{3} \times \frac{2}{5}$ where $p = 3.14159$, &c. Now put the Semitransverse (D**b**) = x , then the Abscissa (b**f**) = $a - x$, the verfed Sine of the circular Segment = v , which by sim. Δ s (AC : BC :: b**f** : fB) is $= \frac{b}{a} \times \frac{v}{a - x}$, and

the Ordinate $cf(\sqrt{2bv - v^2})^{\frac{1}{2}} = y$. Then $\frac{a}{3} \times$ Area of

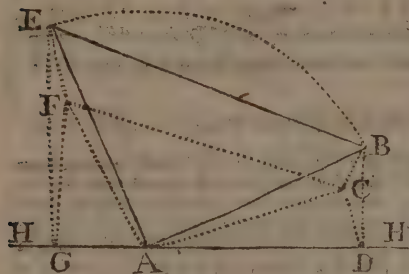
$$\text{Segment } efgB = \frac{\overline{b-v} \times y}{3} \times a - \frac{z^2 \times b \overline{a+a^2-z^2}^{\frac{1}{2}}}{z \overline{a^2-z^2}^{\frac{1}{2}}}$$

$= 536.16469$. To solve which Equation I make Use of the Method of Tryal and Error, and assume $x = 2.2$, then $x^2 = 4.84$, $v = 7.12 (= 0.4 \times 17.8)$ which \times by $\frac{1}{b} \left(\frac{1}{b} = \right.$

$0.89 =$ versed Sine of $83^\circ 41'$, and y the Sine of that Arch $\times 8$ (b) $= 7.9514320$, $a^2 - 2^{\frac{1}{2}}$
 $= 19.86730$, the Area $efgB = 86.701513$ hyp. Log. $\frac{20 + 19.867, \&c.}{2.2} = 2.8978916$,
 which Values substituted in the above Expression of the Solidity, gives $578.01000 -$
 $45.0022 = 533.00789$ too little by 3.1568 , but as near Truth as, I believe, Mr. L. T. can
 cut his Loaf. As there is more Trouble than Art in pursuing this Solution, I hope that
 ingenious Gentleman will excuse any further Proceeding.

Question 22, unanswered.

Question 26, answered by Mr. JOHN PORTER, only, Land-Surveyor,
 at March in the Isle of Ely.



LET HH be the horizontal Line, running parallel with the Side of the Hill, and let the Instrument be placed at A, from whence let 1000 Links be measured to E, and at right Angles to BA, 1000 Links to B, then the Angles E, and B, are each $= 45^\circ 00'$, and the Distance from B, to E, over the Side of the Hill $= 1414$ Links, 21 Parts; but per Quest. the Angle BAC $= 4^\circ 00'$, therefore as Secant $4^\circ 00' : AB ::$ Tangent $4^\circ 00' : BC = 69,75$ Links, and as Radius : AB $::$ Co-sine A : AC $= 997,56$ Links. Now CB is perpendicular to the Right Angle DCB, and the Angle CDB $= 10^\circ 00'$, the Angle DBC $= 80^\circ 00'$, whence DC will be $= 395,6$ Links, which is the Distance of B from D, when measured on the horizontal Plane. Now measure 395,6 Links, from A to G, and at G raise a Perpendicular on HH, which let meet AE, at E: Then $AE^2 - GA^2 = GE^2 = 918,42$ Links. Now in G, E, F, we have the Angle EGF $= 10^\circ 00'$, the Angle GFE $= 90^\circ 00'$, and the Angle FEG $= 80^\circ 00'$, therefore as the Side GE is $= 918,42$ Links, the Side EF is $= 159,48$ Links, and the Side GF $= 904,67$ Links, and as AGF is a Right Angle, therefore $AG^2 + GF^2 = AF^2 = 987,38$ Links, and the Side FC $= 1403,5$ Links. And the Angle ACF $= 44^\circ 42' 21'' 43'''$, and the Angle CFA $= 45^\circ 17' 38'' 17'''$. Therefore the Triangle ABE will be, when measured on the horizontal Plane, $=$ to the Triangle ACF.

Question 27. has been answered by several, but as I think the Truth of Mr. Ward's Scholium (at the End of his Simple Interest) is to be questioned, so I judge those Answers cannot be right, which give 100l. 8s. 1d. $\frac{1}{2}$ instead of 100l. 8s. 4d.; for the Question is founded on that Scholium, and requires simple Interest, in which no Geometrical Progression, Powers, or Logarithms are concerned: as will be hereafter shewn in the Institutes.

B. M.

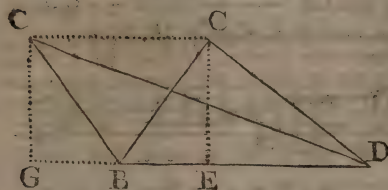
Question 28, not answered satisfactorily.

Question 31. it is presumed has not been answered by reason that the Periods of the Planets cannot be expressed in small whole Numbers, for Days or Years, with any Exactness; and large Numbers for Minutes or Seconds would make the Process very troublesome, and not worth pursuing: Tho' the Rule for Six, or any Number, is easy to any one versed in the analytic Art, as may be seen in Page 334, &c. of Dr. Saunderson's Algebra.

B. M.

Question

Question 32, answered by Mr. B. BUTTLER.



IN the Scheme annexed let CC be parallel to GBD, CG and CE perpendicular thereto, then 'tis plain the Question admits of two Answers, putting $a = BD = 75$, $b = DC = 45$ as per Question, and let $s =$ the Sine of the included Angle CBD $=$ CBG, Radius $= 1$, then per Trigonometry $1 : b :: s : s b = CE = CG$; and allowing the Length of one Hurdle $=$ to 2 Yards, (and making the Area $= 1$ Ac. O. R. 18

$\frac{62}{121}$ Po. instead of 1 Ac. O. R. $18 \frac{62}{141}$ Po. as was the Proposer's Design) and because 275 Hurdles $= 1$ Po. in Length, we have $275^2 \times 178 \frac{62}{121} = 1350 = A$, the Area in square Hurdles, whence per Fig. ($BD \times CE = BD \times CG$) $abs = 2A \therefore s = \frac{2A}{ab}$, and (per

Sines and 47 Euclid 1.) $\sqrt{1 - \frac{4A^2}{a^2b^2}} =$ Co-sine Ang. CBD, whence per Trig. $1 : b :: \sqrt{1 - \frac{4A^2}{a^2b^2}} : \sqrt{b^2 - \frac{4A^2}{a^2}} = BE = BG$, and (per Elem. of Geom. $\overline{BC}^2 + \overline{BD}^2 \pm 2BD \times BE (=GB) = a^2 + b^2 \pm 2\sqrt{a^2b^2 - 4A^2} = \overline{CD}^2 = x^2 = 3600$, whence $x = 60$ when the Angle CBD is acute, but when obtuse $x = CD = 108.1203$.

W. W. R.

This Question was also answered by the Proposer Mr. Hemmingway, Mr. Foulgar, Mr. Wildbore, and Mr. Viger.

New QUESTIONS to be answered.

Question 59.

By Mr. WHITEHEAD.

GIVEN $\frac{3}{5}$ of $\frac{1}{2}$ of the Difference between the Base and Hypothenufe of a right angled Triangle $= 2.4$ Chains, and $\frac{4}{5}$ of $\frac{1}{2}$ of the Difference between the Perpendicular and Hypothenufe $= 5$ Chains. Required the Area of the Triangle?

Question 60. By Mr. GOODHEAD.

GIVEN $x^a = ay$ an Equation to an Exponential Curve; to find its Area when $x = 10$, and $a = 100$?

Question 61.

By Mr. J. B—CH—T—N.

REQUIRED the greatest Cone that can be inscribed, and also the least Cone, that will circumscribe that Globe, whose Semi-axes is equal to the Length of a Pendulum, which vibrates as many Times in a Minute as it is Inches in Length, by a simple Equation?

Question 62.

By Mr. C. HAMILTON HOLMES, Master of the Academy at Halstead in Essex.

IF in a Storm, or by any other Accident a Ship loses all her Masts and Rudder, and the Method of steering with Cable veer'd out a Stern proving ineffectual, what will be the best Method to use to steer the Ship by?

Question 63.

By Mr. THOMAS BOONE of Ged-dington in Northamptonshire.

IN what Order must I plant 14 Trees, to make 21 Rows, each Row to contain 3 Trees?

Question 64. By Mr. PHILIP TURNER, of Chessham, Bucks.

GIVEN one of the Angles of any Triangle equal $41^\circ 30'$ that incloses 6 A. 2 R. 00 P. of Ground, quere the Diameter of the greatest inscribed Circle when the Sides are the shortest possible?

A Farewell to the Summer's Diversions. A SONG.

The Words by Mr. JOHN DUICK, and set to Music by Mr. MOZE.

Now summer de--cay--ing abates of its heats, The Sun
 later rises and sooner he sets, The sun la--ter
 rises and sooner he sets; The mists in the morning they droop and they
 chill and frown in black clouds on the brow of the hill, and
 frown in black Clouds on the brow of the Hill.

II.

The leaves on the trees once so lively and
 green,
 Now turn'd to a russet, quite deaden the
 scene;
 Fast dying they fall to the ground, and con-
 sume;
 The earth that late foster'd now finds them
 a tomb.

III.

And with the gay season gay pleasures ex-
 pire;
 Now, mute at *Vaux-hall* are the voice and
 the lyre;
 No more with the fair in the Fresco we rove,
 Where eyes far out-shine all the lamps in the
 grove.

IV.

Yet let not despondency wholly prevail,
Our pleasures with summer won't totally
fail,
Tho' from her lov'd region her melody flies,
The goddess will soon on the theatre rise.

V.

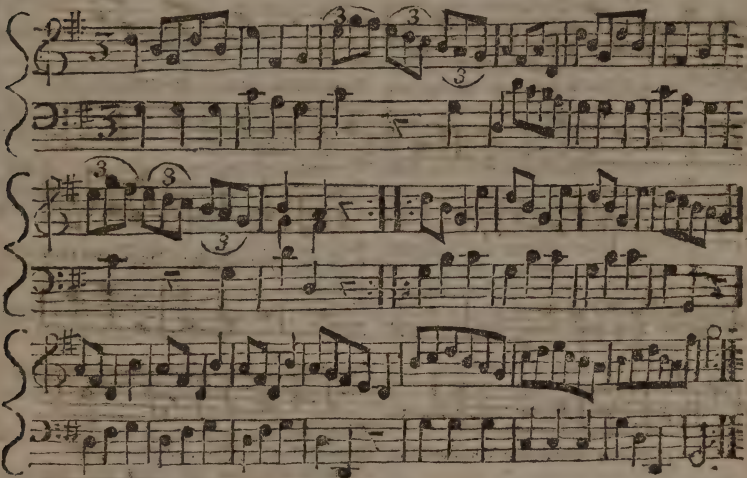
What tho' the soft notes no more float in the
gale,
And rocks cease repeating each amorous tale,
Our raptures sweet *Handel* and *Arne* shall
revive,

And our spirits dance chearful to *Beard*,
Lowe, and *Clive*.

VI.

Farewell, then fresh air and the murmur-
ing rill,
And welcome old *London*, late routes and
quadrille,
Where concerts, plays, op'ras and night-
masquerades
Excel the whole summer, its sun shine and
shades.

A new MINUET.



HORACE's second Epistle, Lib. I.

WHILST, *Lollus*, you, my friend, at
Rome repeat
A chosen theme, superlatively great,
I read the *Græcian* Poet o'er anew,
Who treats of vice, and manly virtue too,
Much plainer than in sage *Chrysippus*' rules
Taught in the public academic schools;
If not too much engag'd; a-while attend,
And hear my sober sentiments, my friend.
The fable shews us how, in direful arms,
The *Greeks* engag'd for beauteous *Helen*'s
charms,
The kings and subjects, equally engag'd,
Were in a ten year's bloody war engag'd;
But hear the generous *Attendant* plead
Ye noble chiefs, restore the captive maid.
But what says *Paris*? Sir, you plead in vain,
I'll not be forc'd to surrender to a reign.
Old *Nestor* tries, the diff'rence to compose,
And heal the contest 'twixt the haughty foes:

But stern *Atræides* storms, whilst furious love,
And rage insatiate, fierce *Achilles* move.
When Prince's faults are at so great a height,
The injur'd subjects feel the mighty weight.
Without the walls, there's nought but her-
rid sin,
Only sedition, pride and strife within.
The poet next points out a virtuous sage,
A bright example in so vile an age,
Who fighting bravely for the *Græcian* cause,
Travel'd to study kingdoms, men and laws,
Whilst for himself, and all his num'rous band,
He seeks to gain th' *Ithacian* fertile land;
Thro' many dangers and thro' perils tost,
He gain'd at last the long expected Coast.
The *Syren*'s songs and *Circe*'s cups he fear'd,
The dire effects of which you've doubtless
heard,
For had he tasted, with his foolish men,
He'd liv'd a vassal to a lustful queen;
Or like a dog, or swine in vilest dress,
Which nought delights but dirt and nastiness.

Meer

Meer cyphers only men are found to be,
Like those who courted chaste *Penelope*;
Or like *Pbenicia's* Youth, who vainly think
They're born for nothing but to eat and
drink;

Who sleep 'till noon, and then with sooth-
ing airs

Of the melodious harp, dispel their cares.
To cut men's throats rapacious villains wake,
Will you not rouse you for your safety's sake?
If you refuse in perfect health to run,
When lab'ring with the gout you're forc'd
along,

Unless, before th' approach of day, you light
Your waxen taper and in books delight,
And with the lib'ral arts your mind improve,
You're ever rack'd with envy or with love:
You for your eyes a speedy cure prepare;
Then why neglect the mind from year to year.
The work's half finish'd that is well begun,
Dare to be wise; no longer loiter on.
He who defers to mend from day to day,
Does on a river's brink, expecting, stay—
'Till the whole stream, that stop'd him, shall
be gone,

Which as it runs for ever will run on.
Prolific wives we seek in hopes of heirs,
And gath'ring riches claims our greatest
cares,

We stub the woods, renew the barren soil,
Thus we for sordid riches daily toil;
Nor house, nor land, nor heaps of gold
afford

One real pleasure to their sev'rish lord.
A fine estate and stately buildings cheer
The man who labours with desire or fear;
As curious paintings gratify the sight
Of twinkling eyes, which can't endure the
light.

As bathings do the gouty patient cheer,
Or pleasant music an imposthum'd ear.
Foul vessels four what ever they contain,
Fly thien from ev'ry pleasure bought with
pain.

He always wants who'd more and more ac-
quire,

By certain limits bound your fond desire.
The foolish envious man regrets to see
His honest neighbour in prosperity.
Sicilian tyrants never could invent
A greater punishment than discontent.
The man who can't his cruel rage restrain,
What then he does he'll with undone again;
Anger's a sort of madness; then subdue
Your rising passion, or it conquers you;
And hold it fast with a coercive rein,
And down to reason fix the conq'ring chain.
The skilful groom does teach the tender horse
To move obedient in his circling course.

The youthful hound, be'ng taught at skins
to bark,
Now hunts the living deer within the park.
Now virtue's precepts timely learn in youth,
And early hearken to the voice of truth.
But if you either lag too far behind,
Or run before until you lose your wind;
I'll keep the golden mean, nor stay for you,
Nor will I, Sir, too eagerly pursue.

*Verses wrote in a Grove at Winches-
ter College.*

O Dryad, whose protection gives to tow'r
These aged elms (with leafy heads a-
round,
Which spread glad refuge from the furious
rays
Of *Phæbus*, darting more malignant fire
In fell conjunction with the raging star
Of *Sirius*:) farewell, thy grove! where oft
Th' unwilling muse I woo'd, or gave my
soul—

To contemplation, nurse of thought, or fed
With greedy pleasure on the muse's charms:
That muse, who studious of her much lov'd
sons,

Wharton, or *Lowth*, from *Hippocrene* brings
The stream prolific, and has taught to flow
In *British* numbers, who by nature lent.
Under thy shades first lisp'd the infant verse,
First tun'd her fearful voice, now grown ma-
ture,

Sets in just pomp, and harmony of words
Wits precious gem, and, like a muddy
stream

Clear'd by its course, in mirror truly bright
Reflects back nature on itself: I go
(Where conscious *Isis* rolls her ling'ring
waves

With admiration slow) to that fam'd dome
Where he, who gall'd proud *Gallia's* stub-
born neck

Beneath the *British* yoke, drank deep the
spring

Of classic-knowledge, and matur'd his soul
To deeds of high renown:—his shady grove,
O may some pitying brother Dryad lend!
With secret pleasure there shall mem'ry oft
Retrace thy silvan scenes; shall paint, in
thought,

Fair * *Cath'rine's* verdant summit; or shall
plunge;

Eager, amid th' imaginary flood
Of † *Itchin's* silver urn; or pensively
Recall those happier foster hours, which flew
With sorrow'd speed on friendship's balmy
wings:

Friendship, glad offspring of th' virtuous
heart:

Friend-

* Hill greatly frequented by the *Wiccansists*.

† Name of the River near the Hill.

Friendship, whose dear remembrance e'er
shall glow
Deep in my faithful breast: — to fancy's eye
In green-clad beauty may each summit rise,
Grateful as *Cath'rine's*; gentle *Iss* flow
Grateful as *Ichbin*; other groves supply
The loss of thine; divided friendship's wounds
No skill can probe, no soothing med'cine
cure.

*A Description of Okey-Hole, and
Cheddar-Cliffs, in Somersetshire.*

Near Mendip's savage hills, replete with
store
Of Oker, Calamine and Leaden Ore,
Fam'd *Okey-Hole* dilates with hideous look,
Dark as the passage to the *Stygian* brook.
Deep sunk beneath a hill, the cavern yawns;
With dismal gulph, and faddens all the lawns;
Vast, and impervious, not one beam of light
There sheds its lustre, to dispel the night;
Only faint tapers guide our doubtful way,
And scatter thro' the gloom a sickly ray.
As when *Aeneas*, led by fond desire,
To see the shade of his departed fire,
Felt, when he first approach'd those rueful
plains,
A sudden horror shudder thro' his veins;
Thus the dark vault we trace, with secret
dread,
And seem to breathe the regions of the dead.
The weeping rocks distil with constant
dews,
And gloomy prospects pensive thoughts in-
fuse,
The falling drops the silent moments mark,
And mock the adder, hissing in the dark.
We saw *time's hoary monarch*, seated here,
Record the drops, and guide the circling
year;
Pleas'd with the shade of these coeval cells,
Here, with his scythe, the fire of ages dwells,
Reclining on a rock, the moments rolls,
And marks the *Revolutions* of the poles.
Still groping thro' the dark recess we find
New scenes of wonder, to amuse the mind:
A gentle lake, here, calm as *Lethe*, stands.
So clear, the bottom shews transparent sands.
A hollow rock the silver flood contains,
Which never sinks with drought, or swells
with rains;
Here a vast arch, the cavity so wide,
Scarce can the eye extend from side to side.
High o'er the roof alternate echo's wave,
And sound, in distant whispers, thro' the
cave.

But, if you'd hear it thunder under ground,
Thro' the still grotto let your pistol sound,
Responsive murmur ring from rock to rock,
And all the cavern trembles with the shock.

Cheddar-Cliffs.

SEE *Cheddar-Cliffs*, with awful front arise,
And craggy battlements the sight sur-
prize.

Two chains of rocks erect on either hand,
O'er many a furlong stretch'd, contiguous
stand;

With Alpine head, gigantic tops ascend,
And o'er the vale with low'ring aspect bend;
The nodding arches big with ruin shew,
And prominent still frown with pond'rous
woe:

Their adamantine tops aspire so high,
Half way they bid defiance to the sky;
Whose solid ribs, like parapets afar,
Present an image of embattl'd war.
Deep in the vale below, pale travellers stand,
Fenc'd with stupendous towers on either
hand;

Thus thro' the parting sea old *Moses* fled,
While the uplifted waves forook their bed,
And pil'd on high, in terrible array,
Obedient stood, and form'd, and fenc'd the
way.

Yet midst the craggy piles, and ruins here,
Wild plants, and trees with verdant tops
appear.

Uncommon herbs, peculiar to the place,*
Peep thro' the fissures, and the prospect grace.
Here the sage botanist delights to stray,
Nature his guide, and his companion *Ray*:
Pleas'd with the fair anatomy, now roves
Thro' untrod paths and vegetable groves,
The curious texture of each plant to find,
Whether of *bulbous* or *umbellous* kind.
This search, great *Cowley*, thy last hours em-
ploy'd,

When with gay life, and courtly duty cloy'd,
The fields then saw their fugitive again,
And bloom'd afresh, in his botanic strain.

Tir'd with romantic scenes again we rise,
On *Mendip-Hills*; and breathe the serener skies.
Now old monastic *Wells* its domes erects,
And from its gilded spires the sun reflects.
Wells, whose cathedral, with majestic air,
Sublime, can with *Italian* piles compare;
Nor can *Turin* or *Florence* fair display,
Pillars more splendid, or a front more gay.

From. S. BOWDEN.

HYMN

* Cheddar Cliffs are remarkable for a great variety of curious, uncommon plants, and are
much resorted to by Botanists.

HYMN to Death, occasioned by
MARIA's Illness.

RESentless pow'r! whose fatal steel,
Or soon or late we all must feel;
From thy sable throne descend,
And to this lay a while attend;
From thy sickly drooping court,
Where dire disease and age resort,
Consumption, and the meagre train
Of fever, and corroding pain.
E'en ev'ry charm of *Cloe's* face,
And my *Maria's* ev'ry grace,
At thy approach dissolve away,
(The beauties only of a day.)
Her mind alone thy pow'r defies;
When ev'ry charm of person dies,
That shall remain a faithful guest,
Within the closet of her breast;
Oh! if the fatal hour is come,
Prædestin'd for my fair one's doom,
Chuse from thy store thy lightest dart,
And gently wound her thrilling heart,
Nor let her know a moment's smart,
Redouble all her pains on me;
But ah! from torment set her free.

Sad thought! that so much beauty, must
Return degraded to the dust;
That by thy hand each vermil' grace
Must wither on that blooming face;
That all the charms, which nature gave,
Must lye forgotten in the grave.

FLORIO.

The ventrous Lover.

AS slumbering fair *Rosetta* lay,
Whilst balmy sleep had seal'd her eyes;
(Eyes which unclos'd diffus'd a Day
Brighter than *Sol's* in eastern skies!)
Damon by luckless fate convey'd
Unheeded to her chamber stole:
Whilst pleas'd he view'd the wond'rous
maid,
Pallas thus whisper'd to his soul.
"Retire, rash youth, for yet thy fate
"In even ballance trembling stands;
"Retire, e'er yet thou mourn'st, too late,
"Thy vanquish'd heart in captive bands.

"Think not *Rosetta's* conquering power
"Sleep does aught lessen, or disarm;
"Fly, or thou'lt rue the fatal hour;
"There lurks a death in every charm.
"If thou survey'st her matchless face,
"Her face the soul with transport fills,
"Or if thou view'st, with greedy gaze
"Her breast, it's breathing whiteness kills.
"In every charm love lurking lies,
"Sends from each grace his dread com-
mands;
"But if thou stay'st her opening eyes,
"None, mortal born, their power with-
stands."

The goddess warn'd—the hardy swain
Unheeding heard her counsel wise:
She wakes, her eyes dart fierce disdain,
And *Damon*, by their lightning, dies.

Verses written upon the Head of a
Drum, left in the Corner of an
Alehouse, by a Party who were
just return'd from paying their Sa-
lutations upon it to a new married
Couple.

MARRIAGE we know, 'twixt man and wife,
Is but a military life,
Where each side daily battle pitches
Contending who shall wear the breeches:
Whence, wisely, custom is so supple
To hail with drums the new-spous'd couple,
And wedlocks emblem'd joys declare
By beating up—a point of war.
— Poor fond papa's that yearly go,
With their young broods to *Smithfield* show,
For toys, when ev'ry stall they cry at,
Buy drums—to keep the urchins quiet.
Drum! thou odd monster, hoarse of din,
With staring ears and jaundic'd skin,
Yet tame, when folks thee softly treat,
And never noisy but when beat,
Thou'rt a companion, 'tis confess'd,
Or very rude, or dull—at best;
Disturb'd by jars in ev'ry part,
And hollow—as a ———'s heart.

All we can reply in answer to a Query, why there is no Moon about Mars, is,
That we do not find any one able to assign a Reason for it, that will amount to any
Thing more than a Conjecture. This will probably remain one of the many Arcana
of Nature.

Title-pages, together with a Table of Errata, will be published in a supplement-
tal Number at the End of the Year, and proper Directions for binding each Part of
the Magazine by itself.

A CHRONOLOGICAL MEMOIR of Occurrences.

For NOVEMBER 1755.

Constantinople, Oct. 1.

ON the 27th past we had one of the most dreadful Fires that has happened for many Years: It began at Twelve at Night, by the Water-side, near the Seraglio, and burnt 34 Hours without Intermission, extending itself, by means of a strong North-East Wind, up the City towards the Mosques of Sancta Sophia and Sultan Achmet. All Efforts to stop its Fury were ineffectual. The Sultan on the 28th in the Evening abandoned it to Providence to put an End to its Progress. The Porte, or Vizir's Palace is burnt down; and most of the principal Ministers lost their Seraglio's. In short, 25,000 Houses have been reduced to Ashes, and upwards of 800 Men, Women and Children perished in the Flames. Numbers

of the inferior People have lost their whole Substance, without knowing which Way to turn for Subsistence.

Placentia, Oct. 26. The Waters of the Po, the Gravelon and the Ticino, have over-topped their Banks, and form a Kind of Sea of seven Miles broad in this Neighbourhood. The Inundation has made terrible Devastations: In one House only, 14 Persons have been drowned; and from the Walls of this City we see the Carcasses of Men and Cattle floating, besides a great Quantity of Household Furniture. Two Houses belonging to the Marquis Arcelli have been considerably damaged, and all the Goods spoiled: In fine, we see nothing but Calamities all around us.

L O N D O N.

Oct. 22. THE Court Martial which sat on Lord Harry Pawlet, Captain of the Barfleur, for quitting his Station without leave from Adm. Hawke, ended, when his Lordship was acquitted.

24. Thirty Pieces of Cannon were drawn out of the Tower, in order to be sent to the Sea Coasts.

31. A great Number of Horses were marked at the Tower for his Majesty's Service.

Nov. 1. The drawing of the Lottery was finished.

This Day a most extraordinary Phenomenon alarmed several sea-port Towns in England and Ireland, and several Cities in Holland. At Wanbrugge, Alphen, Boshoop and Rotterdam: The Water in the several Rivers, Canals, Lakes, &c. were agitated in such a Manner, that Buoys were broken from their Chains, large Vessels snapped their Cables, and smaller ones were thrown out of the Water on the Land, and others lying on the Land were, by the sudden Inundation, set afloat; and in the Lake of Harlem particularly, the Course of a Vessel on full Sail was suddenly suspended, and the Rudder unhung. During the Time of this Agitation, which continued near four Minutes, not only the Water in the Rivers and Lakes, but also all manner of Fluids in smaller Quantities, as in Coolers, Tubs, Backs, &c. equally agitated, dashed over the Sides, notwithstanding no Motion was perceptible in their containing Vessels. In such small Quan-

ties also the Surface of the Water had apparently a direct Ascent, prior to its turbulent Motion, and in many Places, even the Rivers and Canals, rose twelve Inches perpendicularly. It is asserted also from Amsterdam, that during this Interval, the Mercury in the Barometer, which about this Time was uncommonly high, descended instantly near two Inches, and made several consequent Vibrations, to the great Astonishment of the Observers.

This Agitation of the Water, we are informed, extended beyond Utrecht, and also Southward to Brabant, where, in the District of Hertogenbosch, in particular, it lasted near half an Hour; occasioning Wrecks of Vessels, long since sunk, to rise to the Surface, and float for several Minutes, notwithstanding there was not the least Wind, nor any Motion discovered on the Land, in all or any of the Places where this Phenomenon was seen.

The above Accounts correspond with those from Portsmouth and several Parts of Wiltshire and Surry, where this Phenomenon happened but with much less Violence. At Godalmin the Agitation of a Canal in a Gentleman's Garden was very singular; it suddenly arose so high, as to overflow the Bank on one side, then subsided and immediately overflowed the Bank on the other Side. At Tenterden in Kent, and the neighbouring Places, between ten and eleven in the Morning, the Water of several Ponds was forced

up the Banks with great Violence, foaming, fretting, and roaring like the coming in of the Tide; so as to frighten many that were near. Some are said to have flowed up three Times in this Manner; others circled round in Eddies absorbing Leaves, Sticks, &c. At Swansea, about three Quarters past 6 in the Evening, after two Hours ebb, a large Head of Water rushed up the River with a great Noise; floated two large Vessels; broke their Stern-moorings, and hove them across the River, and it was with great Difficulty they were prevented from over-setting. It fell almost as suddenly, for in ten Minutes there was no Appearance left of more Water than usual at that Time of Tide. But at Kinsale in Ireland, where it happened in the Afternoon, the Tide having ebbd some time, it suddenly returned with a Violence and Impetuosity, impossible to describe. A Sloop of 60 Tons, which lay at Anchor in a Creek, secure even if a Hurricane blew, was torn away from her Moorings, and two new Cables broke like two Threads, by the Force of the Current (for a Breath of Wind did not blow) and drove ashore in a Moment: The Fishing-boats were whirled about like so many Corks, and with a Motion quick as the Fly of a Jack. By special Providence the Boats were just returned from Sea, with the Sailors on board, or they would have been all dashed to Pieces against each other; those that were empty, and had no People to manage them, sunk directly in the Eddy Water as in a Whirlpool. Some others were drove with great Violence on the Land, where they must remain until got off by great Labour. These sudden and surprising Fluxes and Refluxes of the Sea continued from Three in the Afternoon till Ten at Night, seldom more than a Quarter of an Hour before each Return, to the infinite Amazement and Terror of the Inhabitants. The Waters did not rise gradually, but, with a hollow and horrid Noise, rushed in like a Deluge, and rose six or seven Feet in a Minute, and as suddenly subsided. It was as thick as puddle, very black, and stunk insupportably. Some Shocks of an Earthquake were felt the same Day at Corke, and possibly this surprizing Phenomenon might proceed from the Eruption being made in the Sea. 'Tis hoped those Gentlemen who were Eye-witnesses will communicate their Observations; that the curious may be enabled to trace this Phenomenon to its Source. Perhaps an Answer to a few such Queries as these may be of some Use. Was it general or partial? If partial, How far were its Effects perceived up the Country? Was there any extraordinary Shock felt at Sea? how far off? and in what Direction, &c.?

'Tis reported the Tide was retarded two or three Hours that Day: If that be true, as those who live on the Coast must know, it may possibly lead us to the Cause; and even the following Article may give some Light into the Affair.

By the Western, Knowler, arrived from Oporto, we have Advice, that on the first Instant (the Day in which the above Phenomenon happened) there were several violent Shocks of an Earthquake at Oporto, which lasted about eight Minutes, by which several Houses were quite destroyed, and some Churches and Steeples also were much damaged. Abundance of People ran towards the Port, thinking to be safer on board the Ships, but were stopt in their Flight by the sudden swelling of the Sea. Many Places in the Town, which the highest Tides had never reached, were overflowed. Two Spanish Ships, bound to Vera Cruz, which lay without the bar, waiting for a fair Wind to proceed on their Voyage, were carried over the Bar by a huge Wave, and drove up into the Harbour. But though the Damage was very considerable in the Town, we don't hear that the Shipping in the Harbour have suffered much.

7. At the General Court of the Free British Fishery his Royal Highness the Prince of Wales was chosen Governor.

The Right Hon. Slingsby Bethell, Esq; Lord Mayor elect, President,

William Northey, Esq; Vice-president.

For the New Council.

Solomon Ashley, Esq; * Tho. Gordon, Esq; Sir Walter Blacket, B. Lt. Gen. Handasyd. Wm Beckford, Esq; * Henry Hoare, Esq; George Bowes, Esq; John Lidderdale, Esq; * Rd Beckford, Esq; * Lt. Gen. Onslow. Robert Bootle, Esq; Sir B. Rawling, Knt. John Bennett, Esq; R.H.E. of Shaftesbury * Jb. Bosanquet, Esq; * Wm Sloane, Esq; Sir James Creed, Knt. * Wm Sotheby, Esq; Velters Cornwall, Esq; Geo. Townshend, Esq; Thomas Collett, Esq; John Tucker, Esq; And, Drummond, Esq; Hon. J. Vaughan, Esq; * G. Dodington, Esq; Sir Bouchier Wrey, Bt. John Edwards, Esq; William Watson, Esq; Edward Godfrey, Esq; Lewis Way, Esq; Those made with Stars were not in the last Council.

10. The late Lord Mayor, the Aldermen, Recorder, and Sheriffs in their scarlet Gowns, went in their Coaches, to the Water-side, the Sword and Mace being carried before them, and from thence proceeded in the City Barge, attended by the several Companies in their respective Barges to Westminster-hall, where the Right Hon. Slingsby Bethel, Esq; the new Lord Mayor, took the Oaths appointed; after which they all returned by Water.

Water to Black Fryars; and from thence in Coaches, with the usual Solemnity, to Guild-hall, where a magnificent Entertainment was provided; at which were present the great Officers of State, divers of the Nobility, Lords of his Majesty's most Honourable Privy Council, the Judges, and other Persons of Quality and Distinction.

Just before the Lord Mayor landed at Black-Friars, the Building on Piazzas before the Glass Warehouse, whereupon stood a great Number of People, fell in upon several Persons; by which Accident many were much bruised.

The following ONE was performed in his Majesty's Council-Chamber at St. James's.

Recitative by Mr. Wafs.

Plerian sisters tell the morn,
That gave the world a CÆSAR born;
Born to his people's love; the flower
That best adorns the brows of power;
Where-e'er this royal plant takes root,
More glorious reaps the throne the fruit.

Duetto, Messr. Wafs and Baildon.

What sweeter praise in realms above,
What more divine can angels sing,
Than that his grateful creatures love
Their gracious Lord, of kings the king?
Such praises sung by truth, may shew,
How godlike kings are lov'd below.

Air. Mr. Savage.

Cast then cares and fears away,
While his British hearts obey;
Trust the world to CÆSAR's sway:
Whence shall foreign force infect us?
Now shall commerce, sailing free,
Long the boast of Britain be;
While our CÆSAR guards the sea,
Can our beaten foes molest us?
No, no; ambition now no more
Shall waste the world with wanton power.

C H O R U S.

When her pride, fierce in arms,
Would to Europe give law;
At her cost, let her come,
To our cheer of huzza!
Not lightning with thunder more terrible
darts,
Than the burst of huzza from our bold British
hearts.

Recitative. Mr. Beard.

Such were in Edward's days our fires,
Whose sons the same renown inspires,
Whose martial bosoms glow,
In foreign lands,
With British bands,
Again to drive the foe:
When views like these our arms employ,
The fame be CÆSAR's, ours the joy.

Air. Mr. Beard.

For realms so rul'd while nature shews,
The earth brings forth, the ocean flows;

Where fairest fruits and mines remote,
By suns deny'd, by seas are brought:
How blest'd our lot, by heav'n ordain'd,
Then to have liv'd while CÆSAR reign'd?

C H O R U S.

To distant regions round,
In BRITANNIA, to CÆSAR, found.

11. The Tide rose so high in the River Carron, that it overflowed its Banks, laid many Acres of fine arable Land under Water, and broke down a very strong Dam-head, which had never before been down, either with any swelling of the Water or Tide, in the Memory of Man. The Damage done to the Fields, and the Navigation of the River, is very great.

13. Both Houses of Parliament met at Westminster, when his Majesty went to the House of Peers, and being in his royal Robes sated on the Throne with the usual Solemnity, the Hon. Sir Henry Bellenden, Gentleman Usher of the Black Rod, was sent with a Message from his Majesty to the House of Commons, commanding their Attendance in the House of Peers. The Commons accordingly going thither, his Majesty was pleased to make the following most gracious Speech.

My Lords, and Gentlemen,

THE present critical Conjunction of Affairs, and my constant Inclination to have the Advice and Assistance of my Parliament on all important Occasions, have made me desirous to meet you here as early as possible.

Since your last Session, I have taken such Measures as might be most conducive to the Protection of our Possessions in America, and to the Regaining of such Parts thereof, as had been encroached upon, or invaded, in Violation of the Peace, and contrary to the Faith of the most solemn Treaties.

For this Purpose, the Maritime Force of this Kingdom has been got ready with the utmost Application and Expedition, and been principally employed; some Land Forces have been sent from hence to North America; and all proper Encouragement has been given to the several Colonies there, to exert themselves in their own Defence, and in the Maintenance of the Rights and Possessions of Great Britain.

With a sincere Desire to preserve my People from the Calamities of War, as well as to prevent, in the Midst of these Troubles, a general War from being lighted up in Europe, I have been always ready to accept reasonable and honourable Terms of Accommodation; but none such have hitherto been proposed on the Part of France. I have also confined my Views and Operations to hin-

der France from making new Encroachments, or supporting those already made; to exert our Right to a Satisfaction for Hostilities committed in a Time of profound Peace; and to disappoint such Designs, as, from various Appearances and Preparations, there is Reason to think, have been formed against my Kingdoms and Dominions.

By these Methods, I have pursued the Plan which I formerly pointed out to you, and for which I had the Satisfaction to receive the strongest Assurances of your vigorous Support.

What other Power can object to Proceedings so absolutely necessary to our own Defence and Security? My good Brother, the King of Spain, sees with Concern these Differences; and the Part which he generously takes in the common Welfare of Europe, makes him earnestly wish the Preservation of the publick Tranquility. He has also given Assurances, that he will continue in the same pacifick Sentiments.

In pursuing these great Ends, I make no Doubt of the vigorous and cheerful Support of my Parliament; and that, whilst I am engaged in this just and national Cause, the affectionate Assurances which they gave me last Session, will be effectually made good. In Consequence thereof, I have greatly increased my Naval Armaments; augmented my Land Forces in such a Manner as might be the least burthensome; and have concluded a Treaty with the Empress of Russia, and another with the Landgrave of Hesse Cassell, which shall be laid before you.

Gentlemen of the House of Commons,

I have ordered the proper Officers to lay before you Estimates for the Services of the ensuing Year, and likewise Accounts of the extraordinary Expences which have been made this Year, in Pursuance of the Power given me by Parliament. I see, with great Concern, that the necessary Services before-mentioned will require large Supplies. I ask only such as shall be requisite for the effectual carrying on of those Measures, which shall be necessary to support what has been begun, according to your Inclination, for the Security of my Kingdoms and Dominions; and for the Purposes which have been already mentioned to you. Whatever you grant shall, with the strictest Oeconomy, be applied to those Uses only for which it shall be given.

My Lords, and Gentlemen,

I rely upon your Duty and good Affections, which I have so often experienced. There never was a Situation in which my Honour, and the essential Interests of Great Britain, called more strongly for your Zeal, Unanimity, and Dispatch.

14. The House of Peers waited upon his Majesty with the following Address.

Most Gracious Sovereign,

WE, Your Majesty's most dutiful and loyal Subjects, the Lords Spiritual and Temporal, in Parliament assembled, humbly beg Leave to return Your Majesty our unfeigned Thanks for Your most gracious Speech from the Throne.

Your Majesty's Paternal Regard for the Welfare and Prosperity of Your People, which has been so conspicuous on all Occasions, has, in this Critical Conjunction, been demonstrated by your Majesty's earnest Desire to preserve them from the Calamities of War, and by Your Royal Firmness, in not yielding to any Terms of Accommodation that were not reasonable and honourable.

When we consider the high Importance of the British Possessions and Rights in America, to the Commerce and Well-being of these Kingdoms, we cannot but reflect with Concern, as well as Resentment, that, in a Time of full Peace, and contrary to the Faith of the most solemn Treaties, so many Encroachments should have been committed on the Part of France. Nothing can exceed our Surprize at such a Conduct, but our Gratitude to Your Majesty for so powerfully exerting your Royal Care to protect Your Colonies from such Invasions and Insults, and to redress those Encroachments, which had been so unjustly made.

If any Power could be so much mistaken as to imagine, that Your Majesty, or Your Parliament, would remain unactive Spectators of such Unprovok'd Hostilities, they must before now have been convinced of their Error.

We thankfully acknowledge Your Majesty's Wisdom and Goodness, in encreasing Your Maritime Armaments with so great Application and Expedition, and in augmenting Your Land Forces with so much Regard to the Ease of Your People, whilst You were providing for their Safety; and in having, at the same Time, generously given Encouragement to that great Body of Your Majesty's brave and faithful Subjects, with which Your American Provinces happily abound, to exert their Strength on this important Occasion, as their Duty, Interest, and Common Danger oblige, and strongly call upon them to do.

Your Majesty has sufficiently shewn, That no Motives of Ambition, or of fomenting new Troubles, have been the Grounds of Your Conduct. Your Prudence and Magnanimity have been manifested to all the World, by Your evident Disposition to prevent a General War from breaking out in Europe, and by confining Your Views and Opera-

Operations to those salutary and necessary Ends, which Your Majesty has been graciously pleased to declare to us.

It is with Pleasure we observe the Pacific Declarations of His Catholic Majesty, which are so agreeable to the Amity and good Correspondence subsisting between the Two Crowns, and to the general Welfare of Europe.

We should fall short of that Duty which we owe to Your Majesty and our Country, if we did not, with the greatest Sincerity and Chearfulness, promise Your Majesty our most zealous and vigorous Concurrence and Assistance in this Just and National Cause. Nothing shall be wanting, on our Part, to make good those solemn Assurances which were given to Your Majesty by Your Parliament in their last Session. We look upon ourselves as obliged by the strongest Ties of Duty, Gratitude, and Honour, to stand by and support Your Majesty in all such wise and necessary Measures and Engagements, as Your Majesty may have taken in Vindication of the Rights of Your Crown; or to defeat any Attempt which may be made by France, in Resentment for such Measures; and to assist Your Majesty in disappointing or repelling all such Enterprizes as may be formed, not only against Your Kingdoms, but also against any other of Your Dominions, although not belonging to the Crown of Great Britain, in case they should be attacked on Account of the Part, which Your Majesty has taken for maintaining the essential Interests of Your Kingdoms.

Animated with these great and interesting Considerations, we beg Leave, from the Bottom of our Hearts, to assure Your Majesty of our inviolable Duty and Affection to Your Sacred Person; and that we look upon the Preservation of Your Majesty's Government, and of the Protestant Succession in Your Royal House, as the only Security, under God, of our Religion and Liberties. If there are any who have vainly flattered themselves, that menacing Appearances or Preparations could deter us from faithfully and vigorously acting up to these Principles, our unshaken Conduct shall demonstrate how much they have been deceived; and that, though we are far from desiring to injure or molest any of our Neighbours, we are ready to sacrifice our Lives and Fortunes in the Defence of Your Majesty, and of the Possessions, Commerce, and just Rights of Great Britain.

His MAJESTY's most Gracious Answer.

My LORDS,

I Give you My hearty Thanks for this very dutiful and affectionate Address, I see with

the greatest Satisfaction, the Zeal you express for My Person and Government, and for the true Interest of your Country, which I am determined to adhere to. The Assurances you give Me for the Defence of My Territories Abroad, are a strong Proof of Your Affection to Me, and Regard for My Honour. Nothing shall divert Me from pursuing those Measures, which may effectually maintain the Possessions and Rights of My Kingdoms, and procure reasonable and honourable Terms of Accommodation.

Major General Johnson's Letter from his Camp at Lake George, after a sharp Engagement with Baron de Dieskau the French General.

*Camp at Lake George, Sept. 9, 1755.
To the Governors of the several Colonies who raised the Troops on the present Expedition.*

GENTLEMEN,
SUNDAY Evening the 7th Instant I received Intelligence from some Indian Scouts I had sent out, that they had discovered three large Roads about the South Bay, and were confident a very considerable Number of the Enemy were marched, or on their March, towards our Encampment at the Carrying Place, where were posted about 250 of the New Hampshire Troops, and five Companies of the New-York Regiment—I got one Adams, a Waggoner, who voluntarily and bravely consented to ride Express with my Orders to Col. Blanchard of the New-Hampshire Regiment, commanding Officer their. I acquainted him with my Intelligence, and directed him to withdraw all the Troops there within the Works thrown up.—About half an Hour, or near an Hour after this; I got two Indians, and two Soldiers to go on Foot with another Letter to the same Purpose.

About Twelve o'Clock that Night the Indians and Soldiers returned with a Waggoner who had stole from the Camp, with about eight others their Waggoners and Forces without Orders.—This Waggoner says they heard and saw the Enemy about four Miles from this side the Carrying-Place.—They heard a Gun fire, and a Man call upon Heaven for Mercy, which he judged to be Adams.—The next Morning I called a Council of War, who gave it as their Opinion, and in which the Indians were extremely urgent, that 1000 Men should be detached, and a Number of their People would go with them, in order to catch the Enemy in their Retreat from the other Camp, either as Victors, or defeated in their Design.—The 1000 Men were detached under the Command of Colonel Williams, of one of the Boston Regiments, with upwards of

of 200 Indians.—They marched between 8 and 9 o'Clock.—In about an Hour and a half afterwards, we heard a heavy Firing, and all the Marks of a warm Engagement, which we judged was about 3 or 4 Miles from us; we beat to Arms, and got our Men all in Readiness.—The Fire approached nearer; upon which I judged our People were retreating, and detached Lieut. Col. Cole, with about 300 Men to cover their Retreat.—About 10 o'Clock some of our Men in the Rear, and some Indians of the said Party, came running into Camp, and acquainted us, that our Men were retreating; and that the Enemy were too strong for them. The whole Party that escaped returned to us in large Bodies.

As we had thrown up a Breast-Work of Trees round our Encampments and planted some Field-Pieces to defend the same, we immediately hauled some heavy Cannon up there to strengthen our Front, took Possession of some Eminences on our left Flank, and got one Field-Piece there in a very advantageous Situation: The Breast-Work was manned throughout by our People, and the best Disposition made through our whole Encampment, which Time and Circumstances would permit.—About Half an Hour after Eleven, the Enemy appeared in Sight, and marched along the Road in very regular Order directly upon our Center: They made a small Halt about 150 Yards from our Breast Work, when the regular Troops (whom we judged to be such by their bright and fixed Bayonets) made the grand and center Attack. The Canadians and Indians squatted and dispersed on our Flanks.—The Enemy's Fire we received first from their Regulars in Platoons, but it did no great Execution, being at too great a Distance, and our Men defended by the Breast-Work.—Our Artillery then began to play on them, and was served, under the Direction of Capt. Eyre, during the whole Engagement, in a Manner very advantageous to his Character, and those concerned in the Management of it.—The Engagement now became general on both Sides.—The French Regulars kept their Ground and Order for some Time with great Resolution and good Conduct, but the warm and constant Fire from our Artillery and Troops, put them into Disorder: Their Fire became more scattered and unequal, and the Enemy's Fire on our Left grew very faint. They moved then to the Right of our Encampment, and attacked Col. Ruggles, Col. Williams, and Col. Titcomb's Regiments, where they maintained a very warm Fire for near an Hour, still keeping up their Fire in the other Parts of our Line, though not very

strong. The three Regiments on the Right supported the Attack very resolutely, and kept a constant and strong Fire upon the Enemy. This Attack failing, and the Artillery still playing along the Line, we found their Fire very weak, with considerable Intervals: This was about Four o'Clock, when our Men and the Indians jumped over the Breast-work, pursued the Enemy, slaughtered Numbers, and took several Prisoners, amongst whom was the Baron de Dieskau, the French General of all the regular Forces lately arrived from Europe, who was brought to my Tent about Six o'Clock, just as a Wound I had received was dressed. The whole Engagement and Pursuit ended about Seven o'Clock.

I don't know whether I can get the Returns of the Slain and Wounded on our Side to transmit herewith; but more of that by and by.

The greatest Loss we have sustained was in the Party commanded by Col. Williams, in the Morning, who was attack'd, and the Men gave Way, before Col. Whiting, who brought up the Rear, could come to his Assistance. The Enemy, who were more numerous, endeavoured to surround them; upon which the Officers found they had no Way to save the Troops but by retreating; which they did as fast as they could. In this Engagement we suffer'd our greatest Loss; Col. Williams, Major Ashley, Capt. Ingersal, and Capt. Puter, of the same Regiment; Capt. Ferrall, Brother-in-Law to the General, who commanded a Party of Indians, Capt. Stoddert, Capt. M'Ginnes, Capt. Stevens, all Indian Officers, and the Indians say, near 40 of their People, who fought like Lions, were all slain: Old Hendrick, the great Mohawk Sachem, we fear is killed. We have abundant Reason to think we killed a great Number of the Enemy; amongst whom is Monsieur St. Pierre, who commanded all the Indians. The exact Number on either Side I cannot obtain; for tho' I sent a Party to bury our Dead this Afternoon, it being a running scattered Engagement, we can neither find all our Dead, nor give an exact Account. As fast as these Troops joined us, they formed with the rest in the main Battle of the Day; so that the Killed and Wounded in both Engagements, Officers excepted, must stand upon one Return.

About Eight o'Clock last Night, a Party of 120 of the New-Hampshire Regiment, and 90 of the New-York Regiment, who were detached to our Assistance, under the Command of Capt. M'Ginnes, from the Camp at the Carrying-Place, to reinforce us, were attacked by a Party of Indians and



81°35' 79°35' 77°35' Long: 75°35' from 73°35' London 71°35' 69°35'

OSWEGO an ENGLISH FORT

House and Garrison.

Lake Ontario

Fort Frontenac

LAKE ONTARIO

SIX NATIONS

Ft Niagara

Ft du Quesne

by French Deserters.

References

- a. The ditch with a breastwork.
- b. The earth not dug away in the angles.
- c. The bastion consisting the Ditch from on which a piece of Cannon are mounted.
- d. A Magazine.
- e. The draw bridge is 12 feet.
- f. The command room is by 32 feet.
- g. The guard room is by 32 feet.
- h. Soldier's Barrack is by 50 feet.
- i. Storehouse of 100000 lbs.
- k. Apartments for Officers is by 50 feet.
- l. Gunners Shop is by 15 feet.
- m. A Prison.
- n. Quarters for 1000 Soldiers.
- o. Apothecary is by 15 feet.
- p. The Parade.
- q. Entrenchment 12 feet high with loopholes for small Arms.
- r. A Guard for Soldiers.

Fort Frederick

at Crown Point

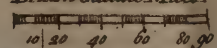
built by the French in 1731.

50 feet

A Map of NEW ENGLAND

Country adjacent extending Northward to Quebec & Westward to Niagara on Lake Ontario; showing Gen: Shirley and Gen: Johnson's Routes; many places omitted in other Maps; Communicated by a person who resided in these parts.

British Statute Miles.



58 Long: W. 60 from 62 Ferro 64 66

Engraved for the General Magazine of Arts & Sciences for W. Owen at Temple Bar 1755.

and Canadians, at the Place were Col. Williams was attacked in the Morning: Their Engagement began between 4 and 5 o'Clock. This Party, who our People say were between 3 and 400, had fled from the Engagement here, and gone to scalp our People killed in the Morning. Our brave Men fought them for near two Hours, and made a considerable Slaughter amongst them. Of this brave Party 2 were killed, and 11 wounded, and 5 missing. Capt. M'Ginnes, who behaved with the utmost Calmness and Resolution, was brought on a Horse here, and, I fear, his Wounds will prove mortal. Ensign Falsam, of the New-Hampshire Regiment, is wounded through the Shoulder.

I have this Morning called a Council of War, a Copy of the Minutes of which I send you herewith.

Monsieur Le Baron de Dieskau, the French General, is badly wounded in the Leg, and through both his Hips, and the Surgeon very much fears his Life. He is an elderly Gentleman, an experienc'd Officer, and a Man of high Consideration in France. From his Papers I find he brought under his Command to Canada, in the Men of War lately arriv'd at Quebec, 3171 Regular Troops, who were partly in Garrison at Crown-Point, and encamped at Ticonderoro and other advantageous Passes, between this and Crown-Point. He tells me he had with him Yesterday Morning 200 Grenadiers, 800 Canadians, and 700 Indians of different Nations—His Aid de Camp says, (they being separately asked) their whole Force was about 2000—Several of the Prisoners say about 2300—The Baron says, his Major General was killed, and his Aid de Camp says, the greatest Part of their chief Officers also. He thinks by the Morning and Afternoon Actions, they have lost near 1000 Men, but I can get no regular Accounts. Most of our People think from 5 to 600. We have about 30 Prisoners, most of them badly wounded. The Indians scalped of their Dead already near 70, and were employed after the Battle last Night, and all this Afternoon, in bringing in Scalps; and great Numbers of French and Indians yet left unscalped. They carried off Numbers of their Dead, and secreted them. Our Men have suffer'd so much Fatigue for three Days past, and are constantly standing upon their Arms by Day, half the Whole upon Guard every Night, and the rest lay down armed and accounted, that both Officers and Men are almost worn out. The Enemy may rally, and we judge they have considerable Reinforcements near at Hand; so that I think it necessary we be upon our Guard, and be watchful to maintain the Advantages we

have gained. For these Reasons I don't think it either prudent or safe to be sending out Parties in Search of the Dead.

I do not hear of any Officers killed at our Camp but Col. Titcomb, and none wounded but myself, and Major Nichols of Col. Titcomb's. I cannot yet get certain Returns of our dead and wounded; but from the best Accounts I can obtain, we have lost about 130 who are killed, about 60 wounded, and several missing from the Morning and Afternoon's Engagement.

I think we may expect very shortly another and more formidable Attack, and that the Enemy will then come with Artillery.—The late Col Williams had the Ground cleared for building a stockaded Fort. Our Men are so harrassed, and obliged to be so constantly upon watchful Duty, that I think it would be both unreasonable, and I fear in vain, to set them at work upon the designed Fort.

I design to order the New-Hampshire Regiment up here to reinforce us, and I hope some of the designed Reinforcements will be with us in a few Days. When these fresh Troops arrive, I shall immediately set about building a Fort.

My Wound is in my Thigh, and very painful. The Ball is lodged, and cannot be got out; by which Means I am, to my Mortification confined to my Tent.

Yours,

This Letter was begun, and should have been dispatched Yesterday; but we had two Alarms, and neither Time nor Prudence would permit it. I hope, Gentlemen, you will Place the Inconveniences hereof, to the Account of our Situation.

I am, Gentlemen,
most respectfully,
your most obedient Servant,
WILLIAM JOHNSON

As we have already given a general Description of the Country, which was the Scene of the above glorious Defeat, in our Magazines for July and August; and have given, in our Magazines for May and June, a large and accurate Map of all North America, in which the above Scene of Action is included, and in which Lake St. George is called by its antient Name L. St. Sacrament. We have here been enabled by the Assistance of a very Worthy and Ingenious Gentleman, who has favoured us with his Plans, and Draughts, taken upon the Spot, during a long Residence in that Country, to oblige our Readers with a more particular Map of that Country, than has ever yet been published, in which is pointed out, General Johnson's, and General Shirley's Routes,

Routs, the former from Hudson's River to Lake St. George, and the latter from the same River to Fort Frontinac, with Plans and Descriptions of the English Forts at Oswego, of Fort-Quebec, and Fort Frederic at Crown Point, &c.

To protect and encourage the Trade with the *Ottawaw, Mississaugaw, Miami* and other Indians, Governour Burnet built a House or Garrison at Oswego in 1727. Its Walls are of Stone near 4 Feet thick laid in Loam; they are 64 Feet long, and 34 Feet Wide, it has two Rows of Loop-holes, and a Battlement on the Top for its Defence; in 1744 a Stone Wall with two Bastions, and a Horse-shoe or half Moon Battery was built round it, and seven small Cannon mounted. The French House or Garrison at *Niagara* is built in the same Manner, it has Palisadoes round it instead of a Wall. Fort Frontinac is a small Square with 4 Bastions and 8 small Cannon; Mr. *Sbirley's* Design is against one or both of these French Garrisons. Whoever views the annexed Map must be convinced, that if he succeeds, and if Mr. *Johnson* also takes *Croton-Point*, and a proper Fort be built at *Winslow's Pond*, all the Northern Colonies will be secured from French Invasions hereafter. A proper Fort built at *Winslow's Pond*, very little above 60 Miles from *Quebec*,

secundo flumine, would be a much greater Check on that Capital and all *Canada*, than *Crown-Point* has ever been to the *English* Colonies. In short, the possessing and fortifying these three Passes, will destroy all the Schemes the *French* ever had, or can have in these Parts of *America*.

24. Letters from Paris bring an Account of a dreadful Earthquake, which happened at Lisbon the 1st Instant. The Shocks began at Seven in the Evening, and with a most violent Agitation of the Sea: The Custom-house and the King's Palace are entirely destroyed; the Goods in all the Ware-houses towards the Water-side are utterly spoiled or lost; and, to complete the Desolation, the City was set on Fire by the sulphurous Eruptions from the Bowels of the Earth; by all which it is reckoned, that at least half of the Buildings are destroyed, and 100,000 People have lost their Lives, some being swallowed up in the Chasms of the Earth; some being buried in the Ruins of the Houses, and some perishing in the Midst of the Flames. The King and the Royal Family escaped from the Palace half naked. The Courier that brought this News to Paris set out the 4th in the Morning, when Part of the City was still burning.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane.

- Oct. 27. *The Provoked Wife*.—Tom Thumb.
 28. *Merope*.—Devil to pay.
 29. *The Fairies*.
 30. *Merope*.—Englishman in Paris.
 31. *Man of Mode*.—Fortunatus.
 Nov. 1. *Much ado about nothing*.—Tom Thumb
 3. *Merope*.—Duke and no Duke.
 4. *Tamerlane*.—Englishman in Paris.
 5. *Rehearsal*.—Lebe.
 6. *Jane Shore*.—Mock Doctor.
 7. *The Fairies*.—Lilliputian Sailors.
 8. *Fair Quaker of Deal*.—Chinese Festival.
 10. *Merope*.—Anatomist.
 11. *Romeo and Juliet*.—Mock Doctor.
 12. *Inconstant*.—Chinese Festival.
 13. *Provoked Wife*.—Chinese Festival.
 14. *As you like it*.—Chinese Festival.
 15. *Much ado about nothing*.—Chinese Festival.
 17. *Orphan*.—The Lying Valet.
 18. *Earl of Essex*.—Chinese Festival.
 19. *Merope*.—Fortunatus.
 20. *Oroonoko*.—Fortunatus.
 21. *Stratagem*.—King and the Millar.
 22. *Rehearsal*.—The Genii.
 24. *Suspicious Husband*.—Devil to pay.
 25. *Mourning Bride*.—The Genii.

Covent-Garden.

- Spanish Friar*.—School Boy.
Nonjuror.—Harlequin Skeleton.
Romeo and Juliet.—Harlequin Skeleton.
Zara.—Contrivances.
Inconstant.—Harlequin Skeleton.
Zara.—Cheats of Scapin.
Zara.—Lying Valet.
Tamerlane.—Harlequin Skeleton.
Romeo and Juliet.—Cheats of Scapin.
King Henry IV.—Harlequin Skeleton.
Double Dealer.—What d'ye call it.
Way of the World.—The Devil to Pay.
London Cuckolds.—Harlequin Skeleton.
Merry Wives of Windsor.—Miller of Mansf.
Hamlet.—Damon and Phillida.
Recruiting Officer.—Harlequin Skeleton.
Venice Preserv'd.—The Virgin unmask'd.
Funeral.—Flora.
Macbeth.—Contrivances.
Beggars Opera.—Lying Valet.
Theodosius.—Cheats of Scapin.
Constant Couple.—Virgin unmask'd.
She would and she would not.—Devil to Pay.
All for Love.—Damon and Phillida.
Ditto.
Love for Love.—Contrivances.

LIST of SHIPS taken from the French, continued.

Sent into Portsmouth.

The American, from St. Domingo, laden with Sugar, Coffee, Indigo, &c.
Reine des Anges, and the Vierme from Newfoundland, for St. Maloes.
Rencontre, from Martinico, for Vaure.
Amiable Rose, from Canada, for Rochelle.
Colombe, from Oporto, for Bourdeaux.
Esperance, of 74 Guns, taken by the Orford.

Amiable Margaretta, from Gaspie, for Bourdeaux.

Affurance, the Pucelle, and the Ceres, from Newfoundland, for St. Maloes.

Subtle, from St. Domingo, for Bourdeaux.
Eleven French Merchantmen taken in the Mediterranean, and carried into Gibraltar.

Sent into Plymouth.

The Fortune, from Martinico for Havre, with Coffee, Cotton and Sugar.

La Paix, from St. Domingo, for Nantz.
Marquis de Vaudreuil, from St. Domingo.
Maria Theresia, l'Oliviere, and la Terre, from Newfoundland.

St. Matthew, from Newfoundland, for Honfleur.

A large French Ship from St. Domingo.
Duke of Luxembourg, from Newfoundl. for Bourdeaux.

Thetis, from Newfoundl. for St. Maloes.

Fidele and Achilles, from St. Domingo, for Bourdeaux.

A large French Ship into Falmouth.

BIRTHS.

Oct. 21. Lady of Lord Monfon, delivered of a Son.

31. Lady of Sir John Ramsden, Bart. of a Son and Heir.

Nov. 1. Empress of Germany, Q. of Hungary, &c. of a Daughter, named Maria-Antionietta-Anna-Josephina-Johanna.

MARRIAGES.

Oct. . John Patterson, Esq; to Lady Anne Hume, eldest Daughter to the Earl of Marchmont.

Nov. 13. Sir John Elwill, Bart. to the Rt. Hon. the Dowager Lady Raleigh.

DEATHS.

Oct. 22. Mrs. Sarah Heywood, aged upwards of 100, at Stoke Green, Bucks. She was Relict of Thomas Heywood, Esq; first Page of the Bed-chamber, and Closet-keeper to King James II.

30. The Hon. Mrs. Herbert, Governess to the young Princesses.

Sir Rob. Fiddle, Bart. of an Apoplectic Fit, after eating an hearty Supper. As he died without Issue the Title is extinct.

Lady Aubrey Beauclerc, at Milford, Hants.

Rich. Shelley, Esq; Senior Commissioner of the Stamp Office, and Deputy Ranger of St. James's and Hyde Parks.

Nov. 1. Rev. Mr. Hard, Rector of Holton, near Cambridge, drowned by a fall into a deep Well in his own Yard.

7. Sir Wm. Ashburnham, of Broomhall-Park, in Suffex, Bart.

10. Rev. Mr. Edw. Lloyd, Priest in Ordinary of his Majesty's Chapel Royal, Vicar of Hamedon on the Hill, in Essex, and a Minor Canon of St. Paul's and Westminster Abbey.

Civil and Military Preferments.

Rt. Hon. Henry Fox, Esq; appointed principal Secretary of State, in the room of the Rt. Hon. Sir Tho. Robinson, who has resigned.

Claudius Amyand and Hen. Digby, Esqrs; Under Secretaries to the Rt. Hon. Hen. Fox, Esq;

Wm. Johnson, of New York, in America, created a Baronet of Great Britain.

Robert Baron Newport, Chancellor of Ireland, a Viscount, by the Stile of Viscount Jocelyn.

Peter Ludlow, of Ardsfala, in the County of Meath, Esq; a Baron, by the Stile of Baron Ludlow of Ardsfala.

The Rt. Hon. Henry Boyle, Esq; Speaker of the House of Commons in Ireland, is appointed Chancellor of the Exchequer.

Nathaniel Clements, Esq; Deputy Receiver, and Paymaster General, in the room of the Rt. Hon. Luke Gardiner, Esq; deceased.

Sir Henry Cavendish, Bart. Teller of the Exchequer.

John Gore, Esq; Prime Serjeant.

Edmond Malone, Esq; Council to the Commissioners.

Rt. Hon. Tho. Carter, Esq; Secretary of State, in the room of Edward Southwell, Esq; deceased.

Col. O'Brien Dilkes is promoted to the Rank of a Major General.

Rev. Dr. Law, Master of Peter-House, Cambridge, elected Vice-Chancellor of that University.

General Stuart, appointed Governor of Minorca.

George Lane Parker, Esq; Captain of a Company in the first Reg. of Foot Guards.

Martin Sandys, Esq; Capt. in the 2d Reg. of Foot Guards.

Ruvigny de Cosne, Esq; Capt. Lieut. in the said Regiment.

Wm. Whitebread, Esq; Secretary and Register to the Order of the Bath.

Matthias Murray, Esq; Capt. in Lieut. General Skelton's Reg. of Foot.

Wm. Brown, Esq; Major and Captain of a Company of Invalids.

Joseph Bertin, Esq; Capt. Lieut. in Col. Parson's Regiment of Invalids.

Capt. Christ. Hill, to command the Dover Sloop. Capt. Cumming, to command the Saltaish Sloop.

Lieut. Col. John Campbell, one of his Majesty's Aids de Camp.

Col. John Fitz-Williams, Col. of the 2d, of Tangier's Reg. in Ireland.

Lieut. Col. Webb, Col. of the late Sir Peter Halkett's Reg. in North America.

Lieut. Col. Ellifon, Col. of Dunbar's Reg. in North America.

Col. Dunbar, Lieut. Governor of Gibraltar.

Wm. Robinson, Esq; to be Lieut. Col. John Salt, Esq; to be Major; — Turner, Esq; to be Captain, and Lawrence Reynolds, to be Lieut. in Lieut. Gen. Skelton's Reg. — Wynne, Gent. Lieut. in Major Gen. Folliot's Regiment.

The following Gentlemen are appointed to command the Companies to be forthwith raised and added to the following Regiments of Foot. The Captain Lieutenants are in the room of Officers promoted.

Col. Howard's. Mason, Bolton, ditto.

Ja. Johnson, Capt. Maj. Gen. Bocland's,

John Harrison, ditto. Benjam. Beilby, Capt.

John Biddolph, C. Lt. W. Powell, ditto.

W. Gunning, Lieut. Geo. Robinson, Cap. Lt.

George Anklom, ditto. Alex. Murray, Lieut.

L. G. Bentinck's. Edw. Châpéau, ditto.

Edw. Barry, Capt. Gen. Skelton's.

Rob. Milward, ditto. Pat. Ogilvie, Capt.

Dan. Hamilton, C. Lt. Tho. Brereton, ditto.

— Reddish, Lieut. Mat. Murray, Cap. Lt.

W. Langham, ditto. Laurence Bangers, Lt.

L. Rob. Bertie's. W. Armstrong, ditto.

Ja. Hervey, Capt. Col. Jordan's.

Thom. Calcraft, ditto. Ja. Barbut, Capt.

Pat. Drumgoole, C. Lt. Hildebr. Oakes, ditto.

— Blomer, Lieut. Ric. Montgomery, C. Lt.

Fr. Kinner, ditto. John Freemanle, Lt.

Charles Lind, ditto. Andr. de la Cour, ditto.

— Gardner, ditto. Maj. Gen. Folliott's.

Lieut. Gen. Wolfe's. J. And. Eigon, Capt.

Th. Spencer Wilton, Ca. John Roberts, ditto.

James Webb, ditto. Pet. Wilbrabam, C. Lt.

John Fish, Cap. Lieut. Charles Stuart, Lieut.

Ch. Brown, Lieut. Hugh Antobus, Lieut.

— Spence, ditto. Lt. Geo. Beauclerk's.

Col. York's. Geo. Simpill, Capt.

Geo. Godfrey, Capt. Ja. Hargrave, ditto.

Rob. Lamb, ditto. Tho. Cutbert, C. Lt.

— Kennedy, C. Lt. John Scrymgeour, Lieut.

John Savage, Lieut. Tho. Fuller, ditto.

Col. Honeywood's. Tho. Dunbar, Capt. Lt.

T. Worshop Lawrence, C. James Perrin, Lieut.

Jo. Frierson, ditto. Wilson Marshall, ditto.

W. Hamilton, C. Lieut. Col. Leighton's.

Tho. Osborn, Lieut. John Lindefay, Capt.

Edm. Bradshaw, ditto. Jo. Wakeman, ditto.

Earl of Home's. Rob. Rogers, C. Lieut.

Ja. Manwaring, Capt. Charles Ross, Lieut.

Ja. Pringle, ditto. John Nugent, ditto.

Geo. Robert, C. Lieut. Lord Charles Hayes's.

— Wood, Lieut. Valentine Jones, Capt.

Hugh Stirrop, ditto. Loftus Ant. Tottenham,

L. Gen. Anstruther's. ditto.

Dudley Sempler, Capt. John Nuttal, C. Lieut.

George West, ditto. Henry Cotton, Lieut.

John Skyes, C. Lieut. Ant. Isaacson, ditto.

— Keith, Lieut. Lord Rob. Manners's.

W. Dalrymple, ditto. And. Napier, Capt.

Earl of Loudoun's. John Broughton, ditto.

Hayman Rooke, Capt. John Price, Lieut.

G. Augustus, Barry, dit. Samuel Colbeck, ditto.

Teavil Appleton, C. Lt. Major Gen. Stuart's.

John Woodward, Lt. St. Geo. Dally, Capt.

Sir Blaxton Conyers, dit. Rob. Bailey, ditto.

Col. Holmes's. Ant. Blunt, C. Lieut.

Rob. Barker, Capt. Geo. Storach, Lieut.

James Stuart, ditto. — Barbut, ditto.

The following Gentlemen are appointed Officers in the Twelve Independent Companies of Invalids to be forthwith raised.

Majors and Captains of a Company each.

Richard Bowles, William Johnson, Cha.

Durand, Esqrs.

Captains of a Company each. Lord New-

mark, John Tucker, Charles Terrott, John

Harris, John Noble, William Marshall,

George Carr, Thomas Burton, Tho. Smith,

Esqrs.

George Whitmore, Esq; to be Captain-

Lieutenant to Major Bowles's Company.

Lambert Van Riell, Esq; to be Captain-

Lieutenant to Major Durand's Company.

George Daniel, Esq; to be Captain-Lieu-

tenant to Major Johnston's Company.

Lieutenants. — Bennet, John Cliffe,

— Jeynes, James Chalmers, Andrew

Irving, William Brown, — Reade, John

Irwing, — Hawkins.

Ensigns. — Cormell, — Bic-

kerton, Tho. Pringle, — Templeman,

Peter Foubert, — M'Intosh, Ja. More-

head, — Butler, — Goldhawke, —

Foley, — Drummond.

ECCLESIASTICAL PREFERMENTS.

Rev. Geo. Dodworth, A. M. presented to

the prebend of Dunnington.

Timothy Taylor, B. A. to the Rectory of

Upland, Nottinghamshire.


Mr. Geo. Richards, to the Vicarage of

Tafmore, Somersetshire.

Charles

	Baro- meter.	Therm.	Pluvia- meter.	Hygro- meter.
Oct. 28	30 : 3 $\frac{1}{4}$	24	0 : 0	82 Moist.
29	30 : 3	25	0 : 2	82
30	30 : 3	24	0 : 0	82
31	30 : 3	24	0 : 0	81
Nov. 1	30 : 2 $\frac{1}{2}$	24 $\frac{1}{2}$	0 : 0	80
2	30 : 2	25	3 : 8	80
3	29 : 9 $\frac{1}{2}$	26	0 : 1	88
4	29 : 7	24 $\frac{1}{2}$	2 : 6	64
5	29 : 2	22	5 : 5	72
6	29 : 4 $\frac{1}{2}$	20 $\frac{1}{2}$	1 : 0	64
7	29 : 4 $\frac{1}{2}$	20	0 : 0	65
8	28 : 7	20	60 : 7	70
9	29 : 3	19 $\frac{1}{2}$	11 : 4	81
10	29 : 4 $\frac{1}{2}$	18 $\frac{1}{2}$	1 : 0	75
11	29 : 0	17 $\frac{1}{2}$	0 : 0	76
12	29 : 4 $\frac{3}{4}$	19	0 : 6	82
13	29 : 1	21 $\frac{3}{4}$	102 : 0	88
14	28 : 8 $\frac{1}{4}$	20 $\frac{1}{4}$	30 : 7	88
15	29 : 4 $\frac{3}{4}$	20 $\frac{1}{2}$	9 : 4	78
16	29 : 4 $\frac{3}{4}$	19 $\frac{1}{2}$	0 : 0	79
17	29 : 0 $\frac{1}{2}$	21 $\frac{1}{4}$	32 : 6	90
18	29 : 0 $\frac{1}{2}$	22	51 : 7	88
19	29 : 1	21 $\frac{3}{4}$	25 : 0	84
20	29 : 3	21 $\frac{3}{4}$	9 : 4	85
21	29 : 6 $\frac{3}{4}$	22	0 : 0	85
22	29 : 5	23	26 : 0	85
23	29 : 3	22	12 : 5	85
24	29 : 5 $\frac{5}{8}$	21 $\frac{1}{2}$	1 : 5	85
25	29 : 1	21 $\frac{1}{2}$	60 : 7	84
26	29 : 5 $\frac{1}{2}$	20 $\frac{1}{2}$	0 : 0	77
27	29 : 8 $\frac{1}{2}$	19	1 : 0	68

EACH DAY'S *Price of* STOCKS, in NOVEMBER 1755.

 Books shut, is signified thus,

	BANK	E. India	South Sea S. Sea old S. Sea An.	S. Sea An.	3 1/2 Ba. An	3 1/2 Ba. An	3 1/2 per C.	3 per Cent	3 per Cent	3 per Cent	India Bon	B. Cir. per	Lot. Tick
25	No Price.	No Price.	No Price.	An. 18th	A. 2d Subc.	1st Subc.	India An.	Bank An.	An. 17 1/2	India An.	pram.	1, s. d.	12 3 0
26	Sunday.	No Price.	No Price.	—	—	—	89 1/4	91 1/4	No Price.	89	39s a 38 4	7 6	12 3 0
27	No Price.	No Price.	No Price.	—	—	—	—	—	No Price.	—	—	—	—
28	Do	Do	Do	—	—	—	88 1/4	91 1/2	Do	88 1/4	37s a 36	No Price.	13 0 0
29	Do	165 1/2	Do	—	—	—	88 1/4	90 1/4	No Price.	Do	36s	Do	12 10 0
30	120 1/2	166	Do	—	—	—	88 1/4	90 1/4	No Price.	88	32s a 29	Do	12 10 0
31	120 1/2	No Price.	Do	—	—	—	88 1/4	90 1/4	No Price.	88 1/4	28s a 30	Do	16 0 0
1	No Price.	Do	Do	—	—	—	88 1/4	90 1/4	Do	Do	30s a 31	Do	16 0 0
2	Sunday.	No Price.	Do	—	—	—	88 1/4	90 1/4	Do	Do	28s a 29	Do	16 0 0
3	No Price.	No Price.	No Price.	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
4	120 1/2	166 1/2	Do	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
5	120 1/2	No Price.	Do	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
6	Do	166 1/2	Do	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
7	No Price.	No Price.	103 3/4	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
8	Do	Do	No Price.	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
9	Sunday.	No Price.	No Price.	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
10	No Price.	No Price.	No Price.	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
11	120 1/2	Do	Do	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
12	120 1/2	167 1/2	103 3/4	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
13	120 1/2	156 1/2	103 3/4	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
14	120 1/2	155 1/2	104	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
15	No Price.	No Price.	No Price.	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
16	Sunday.	No Price.	No Price.	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
17	No Price.	150 1/2	No Price.	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
18	120	150 1/2	Do	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
19	No Price.	No Price.	Do	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
20	120 1/2	151 1/2	104 1/2	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
21	120 1/2	150 1/2	104 1/2	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
22	No Price.	No Price.	No Price.	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0
23	Sunday.	No Price.	No Price.	—	—	—	88 1/4	90 1/4	Do	88 1/4	28s a 29	Do	16 0 0

Mark-Lane.		Bamington.		Reading.		A. Antislave.		Newbury.		Oxford.		Banbury.	
Wheat 20s to 25s qr.	13s to 16s 10.	81 13s 6d load.	71 15s to 81 2s 10.	71 15s to 81 14s 10.	120s to 155 10.	27s to 34s qr.	24s to 35s qr.	5s od bufl.					
Barley 12s to 14s od.	15s to 17s qr.	16s to 19s od qr.	18s to 20s qr.	16s to 18s qr.	15s to 17s od qr.	13s to 16s	12s to 16s	2s to 2s 2d					
Oats 9s to 11s 6d	14s to 18s od	16s 6d to 17s od	15s to 16s od	13s to 17s 3d	11s to 15s 6d	11s to 12s	12s to 13s	1s 6d to 1s 8d					
Beans 13s to 14s od	12s to 22s od	24s to 25s	21s to 23s 6d	22s to 24s	23s to 27s	22s to 25s	2s 8d to 3s						

Miscellaneous Correspondence, in Prose and Verse.

For *DECEMBER*, 1755.

MATHEMATICAL QUESTIONS *Answered*.

Question 34, answered by Mr. ED. GILLYATT.

PUT $a = ,7854$: Then by a common Theorem $7x^3a = x^x =$ Solidity of the Frustum, whence, by Trial and Error, x is easily found $= 4,18803 \therefore 2x = 8,37606, 3x = 12,56409$, and the Solidity $= 403,8397$.

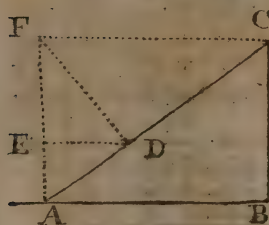
This Question was answered also by Mr. Todd, Mr. Shipman, Mr. Viger, Mr. Wildbore, Mr. C. H. Badger, Mr. Spurling, Mr. H. C. R. S. Mr. Eling, Mr. Buttler, and Mr. Peckham.

Question 35, answered by Mr. THO. TODD.

IF $r = 1.05 = 1$ Pound and its Interest for 1 Year, $n + 1 =$ Number of Years; then $P, n =$ Amount of P in n Years, and its Interest the last Year is $P r^n \times r - 1 = P$
by Quest. from whence $n = \frac{L. \frac{1}{r-1}}{L. r} = 61.4003298$ Years, the Time sought.

This Question was also answered by Mr. Gillyatt, Mr. Chapman, Mr. Viger, Mr. Wildbore, Mr. C. H. Badger, Mr. Buttler, Mr. Fish, and Mr. H. C. R. S.

Question 36, answered by Mr. CHARLES WILDBORE only.



LET AC represent the given Board, CAB its Position with respect to the Head of the Plow, draw FC parallel to AB , and let FA , FD , and ED be perpendicular to AB , AC , and AF respectively. Then as the Resistance acting upon AC is as AF , and the Force of each Particle of that Resistance as $\frac{AE^2}{AD^2} =$ the Square of the Sine of the Angle of Incidence CAB , the whole Force sustained by AC will be expressed by $\frac{FA \times AE^2}{AD^2}$, which (per similar Triangles) is $= EA$; now it is evident that this will be a Minimum when AC coincides with AB ; and therefore the less the Angle CAB is, the less will the Resistance be; or (which is the same Thing) with so much the more Ease will the Board throw off the Furrow.

Question 37, answered by Mr. JOHN TAPNER.

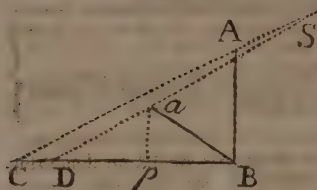
IT is a Property peculiar to the Digit 9, that whatsoever other Digit, with any Number of Cyphers annexed, be divided by it, the Quotient will consist wholly of such Digits, and so many Ninths of an Unit over. Thus $100000 \div 9 = 11111 \frac{1}{9}$. $20000 \div 9 = 2222 \frac{2}{9}$. $80000 \div 9 = 8888 \frac{8}{9}$, &c. Now from the above, and the following Operation compared with that in the Question; I presume the Reason of the Method will be evident to any one who is acquainted with Vulgar Fractions.

$$\left. \begin{array}{r} 5000 \\ 700 \\ 80 \\ 1 \end{array} \right\} \div 9 = \left\{ \begin{array}{r} 555 \frac{5}{9} \\ 77 \frac{7}{9} \\ 8 \frac{8}{9} \\ 1 \frac{1}{9} \end{array} \right.$$

$$5781 \div 9 = 642 \frac{3}{9}$$

This Question was also answered by Mr. Viger, and Carolus Filius Thomæ.

Question 38, answered by CAROLUS FILIUS THOMÆ.



LET AB be the Cane in the perpendicular Position, a B its Position in its inclined State, and let SC and SD be Rays of the supreme Point of the Sun: Then BC = 64 will be the Shade of the Cane when upright, and BD = 54 its Shade when inclined: Also, let fall the Perpendicular ap, which will be p's half, Ba the Angle, a Bp being 30°,

then, by sim. Triangles, as $aB : \frac{aB}{2} (ap) :: BC$

(64) : pD = 32. Then BD (54) less pD (32) =

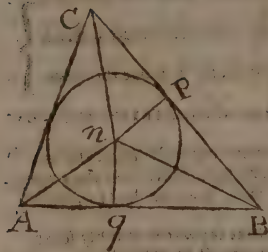
pB = 22, by which, and the Angle a Bp = 30°, Ba the Length of the Cane is found = 25.4, by which and its Shade, the Sun's Altitude, deducting his Semi-diameter, is found to have been 21° 24'. Lastly, having the Latitude of the Place, the Sun's Declination and his Height, the Time of the Day is found to be 19' and 44'' after 6 in the Morning, or 40' and 16'' after 5 in the Afternoon.

Universally. The Ratio of AB to Angle ap is always as Radius to Sine of Angle a Bp. If, therefore, we say as R : S. Ang. a Bp :: BC : pD, we shall always, thereby, obtain its Length.

The same was also answered by Mr. Wildbore, Mr. Buttler, Mr. Spurling, Mr. Bowen and Mr. Thompson.

Question 39, unanswered.

Question 40, answered by Mr. W. BEVIL.



PUT z = the Radius of the Circle, = $nq = np$, &c.

and then if $a + z = An$; $b + z = Cn$; and $c + z = Bn$; now say $a + z : 1 \text{ (Rad.)} :: z : \frac{z}{a + z} =$

qAn ; and as $b + z : 1 :: z : \frac{z}{b + z} = PCn$, also

$c + z : 1 :: z : \frac{z}{c + z} = nBp$, therefore

$\sqrt{\frac{a^2 + 2az + z^2}{a + z} \times \frac{b^2 + 2bz + z^2}{b + z}} = \frac{z}{c + z}$, and

as a , b and c are given, z may be found, &c.

This Question was answered likewise by Mr. Wildbore.

New QUESTIONS to be answered.

Question 65.

By Mr. HEMINGWAY.

INTO the Bag under a Pelican's Beak, at Lepanto, Geo. Wheeler, Esq; put five Cans of Water; having the following Dimensions, viz.

The Top Diameter = $3\frac{1}{9}$
The Bottom Diameter = $6\frac{1}{7}$
The Depth = $10\frac{1}{3}$ } French Inch.

Query the Quantity of the 5 Cans in English Measure.

On the Death of the late Reverend Mr. MORRIS. A DIRGE.

HE who cou'd touch the fightless orb to day,

Whose garment bade the sanguine flood to cease,

Whose look cou'd Satan and his host dismay,

Whose word from death cou'd ev'ry captive rend,

Defend from danger and from hell defend,

Shed tears and wash'd the grave of Lazarus his friend.

Then why forbid the pearly drop to flow

When MORRIS, rapt beyond the starry skies,

Leaves ev'ry friend involv'd in troublous woe,

And steals the torrent from our red'ning eyes?

Ah! who cou'd smile when such a pastor dies!

What bosom now with sighs disdains to heave,

What heart can sorrows well aim'd shaft deceive,

And scorn the call of grief, when 'tis a praise to grieve?

Ye who have sat beneath the sage's feet,

Whose ears have drank his soul-reforming lore,

Fed with his manna, heav'n-descended meat!

Now your lov'd seer, your MORRIS now deplore,

For MORRIS, ah! your MORRIS is no more!

Question 66.

By Mr. BUTTLER.

REquired the least Degree of Velocity possible, wherewith a Musket-Ball being projected, shall just reach the Top of a Tower, whose Height is 225, and Distance from the Place of Projection 1000 Feet. As also the Time of Flight and Angle of Elevation are required.

Question 67.

By Mr. CHARLES WILDBORE.

HOW many English Miles do we, that live in Lat. 53°, move through, during the Time of one diurnal Revolution of the Earth when in Aphelion.

Whom will ye now address in this your woe,
To whom for life's celestial rivers go,
Or ask the paths of joy amidst this gloom of woe?

For you he oft' has wak'd the blushing day,
For you he oft' has robb'd the slumb'ring night;

Nor toil nor danger cou'd his soul dismay,
While soaring upwards to th' ethereal height
His pain was pleasure and his toil delight,
Well knew his soul the dangers of the wife,
Well knew his soul those dangers to despise,

And how to mount on Jacob's ladder to the skies.

How oft' for you he cropt each blooming flower

That in the garden of fair science blows;

While copious harvests own'd the planter's power

And grateful crops beneath his hand arose,
Wash'd by the stream of God that heav'nly flows.

In vain his gen'rous hand the grain had strow'd

And press'd the soil with many a sterile load

Had heav'n not water'd what the sower sow'd.

He held the key which CHRIST to Cephas gave,

The key that opens nature's latent stores,
Unlocks the massy bars which close the grave,

And sets far wide heav'n's starry-spangled doors

To ev'ry soul that skywards humbly soars.

O soar ye skywards all of Adam born,

The gaudy tinsel of ambition scorn,
And seize the snowy robes which cherubims adorn.

In vain at *Babel's* heav'n-assaulting tow'r
Each wight forgot his native language dear,
MORRIS well knew the thought-describing
pow'r;

Retain'd the art each half-lost sense to clear,
And bade the vanish'd character appear:
And, at his word, the store withheld con-
sum'd,

Put on fresh youth, and by his toil illum'd
Shook off its cank'ring rust, and burst
oblivion's tomb,

He knew the speech of *Canaan's* honey'd land
The *Chinese* proud, the *Arabic* profound,
The *Chaldee* rich that clerks shou'd under-
stand,

The copious *Greek* adorn'd with manly sound,
The *Latin* sweet for eloquence renown'd;
The *Spanish* lofty, the *German* rough and
plain,

Italian fit for Music's suave strain
And *French* enervate, lisping, soft and vain.
Yet most those rolls his letter'd hunger drew
Which *GOD* compos'd to these his soul ap-
ply'd;

Call'd forth their bashful beauties to the
view,

Held up their light our devious steps to guide,
Check'd rampant vice and conquer'd human
pride.

From ev'ry scroll he wip'd the envious gall
(Where will not slander's rankling poison
fall!)

And charm'd her asps to sleep, as *David*
conquer'd *Saul*.

The *Tibbite's* fame, beneath his lenient hand
Receiv'd new lustre, and acquir'd new
charms.

See! to his lore each sceptic list'ning stand,
His lore the sceptic of his doubt disarms,
Alarms his conscience and his fears alarms.
Asham'd, he bows his spleen from folly
slow'd,

No more with scorn's holds his dire a-
bode,

Leaves *Kedar's* hated tents and treads in
Sinai's road.

Whilst crow'd-press'd clerks of airy systems
vain,

Build the rich house of faith upon the sand,
He, fighting, view'd their torrent swallow'd
pain,

And rear'd his fabric on the rocky strand,
Which 'gainst the wind and waves, and fire
might stand.

For virtues rock a solid base supplies
Smiles at the storm that threat'ning round
it rise

And the tir'd surge beneath it's feet in
murmurs dies.

His faith on knowledge was securely rear'd,
His knowledge was with temperance con-
join'd,

His temp'rance with fraternal love appear'd,

Fraternal love to gen'ral was refin'd
That with it's arms embrac'd all human kind.
All human-kind confess'd his boundless
love

And, while he rival'd thus the blest above,
He shone as serpents wife, and harmless as
the dove.

Tho' worthy praise, he courted no applause,
But like the moon in silence beam'd his rays,
" His great example strength'ned all his
laws"

For while he taught he trod in wisdom's
ways.

The life best speaks whate'er the voice con-
veys!

Thus in his master's steps he daily trod,
Stay'd by his staff, corrected by his rod,
And in the radiant paths of virtue walk'd
with *GOD*.

Ah me! what sorrows now his flock await,
His weeping flock of ev'ry joy despoil'd,
Who now shall open comfort's shining gate,
Or till the field where painful *MORRIS* toil'd!
MORRIS, whom danger nor distresses soil'd!
Nor deep read clerk nor heav'n directed
tear,

Nor hoary sage, nor friendly prophet dear
Can swage the lab'ring sigh, or stop the
heart-wrung tear.

Then o'er his tomb with hellish rancour stride
And boast, O death, thy too-unerring dart;
Well may the grave, elate in savage pride,
Mock at our woe, deride our riving smart
That wracks the breast and rankles at our
heart.

But yet in vain we sink with woe oppress'd,
And boast the anguish of a love-lorn breast,
Since those adorn him most, who copy
MORRIS best.

On *Miss C*——, singing whilst she
played on the Spinnet.

STILL, I behold you with a fond surprize,
Your rosy cheeks, and charming sparkling
eyes,

To view that heavenly, that killing air!
Without this admiration, who can bear?
In you, such sweet celestial beauties shine
As raise those raptures, which are all divine,
Such unaffected gestures, sprightly wit,
No poem, can a just description hit.

When as you play'd, and to the spinnet sung,
My ravisht soul, on your sweet music hung,
Now charm'd, with the remembrance, who
can tell

These more than pleasing transports, which
I feel!

Thus, whilst I am in equal wonder lost,
Nor can declare, which beauty pleases most;
In extacy involv'd, o'er each I stray,
And thinking on them, time glides unper-
ceiv'd away.

G. Pécœur.

D A M O N.

(See Miscellaneous Correspondence, N^o. VII. page 117.)

Set by THOMAS GREEN of Selston, Nottinghamshire.

Allegro.

3 *Voc.*

Young Da--men once the hap----piest Swain, that ever piped

on verdant plain, or sung a Round--de--lay; All jocund

youth to mirth inclin'd, The ru-----stic Da--nce he

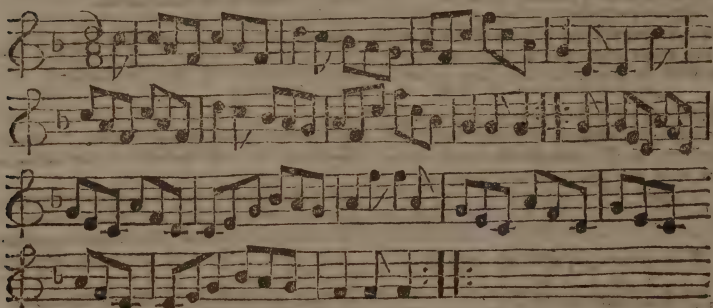
a-----lways join'd, To hail the flow'ry May.

To hail the flow'ry May.

The ANTI-JEW MINUET. By a Brother.



Miss GAMBLE's FROLICK. A COUNTRY-DANCE.



First Coup. Half Figure on their own Sides and turn — the same back again — Cast off and Hands a-crofs with the third Coup. 7 Right and Left at Top, foot the Time out 7.

An Address to the British Chiefs, on the Expectation of a War.

HAIL noble sages of Britannia's isle!
 Bless'd with her commerce and her fertile soil,
 Whose rural fields with bounteous stores abound;
 And her fair cities are with commerce crown'd:
 In her just laws and liberty preside,
 And freedom glories in her affluent pride;
 Rich merchandize, bright gems, and lucid
 oars,
 Her navy wafts to her from foreign shores:
 The fleecy flock that wantons on the plains,
 Supports the trade, and merchandize sustains.
 These, and such blessings *African's* genius
 sends
 On her lov'd prelates, patriots and friends,
 Who still exert their valour in her cause,
 And guard, with zeal, her liberty and laws:

Then still, O noble Britons! sons of fame!
 Retain the honours of your antient name,
 And evermore your war-like prowess show,
 And from your shores repel each daring foe;
 The foaming seas let awful navies sweep,
 And from bold insults your brave merchants
 keep;
 Let haughty *Gauls* our commerce ne'er invade,
 Nor proud *Iberians* boast our wonted trade,
 Till ev'ry hand shall cease the sword to wave,
 And ev'ry head rest silent in the grave.

FLORENDO.

To MARIA. An Epistle.

ACCept this tribute of an humble muse,
 Approve her merits, but her faults excuse;
 So may her fancy's force perhaps improve,
 And sing in equal strains my boundless love.
 Can

Can then indeed *Maria* doubt my truth!
Accuse of specious lyes my artless youth;
That with false tears her breast I try to melt,
By feigning Passions which I never felt,
When e'en my silence still betrays my love,
And my wan looks it's dire oppression prove?

But from my conduct if pretence you'd
take,

To throw me from you, for another's sake,
Speak, and at once, less cruel, let me know
The total sum of my approaching woe.

Are you not ever present to my sight,
By day my thought, my welcome dream by
night;

With you o'er flow'ry lawns I seem to rove,
And on your panting bosom breathe my love,
Eager I gaze upon your blushing charms,
While heaven itself seems center'd in my
arms.

Were your professions but as mine sincere,
No youth I'd envy, and no rival fear;
But rich in you despise all meaner things,
The pageantry of courts and pomp of kings:
In you alone concentr'd wou'd I live
Nor wish for ought the fates have pow'r to
give.

Come then my fair and with a fervent kiss
Sign my pretensions to a greater bliss,
Then, my *Maria*, then yourself will prove,
How true my speeches, and how vast my
love.

FLORIO.

The 90th Psalm attempted.

O Thou the father of us all,
Our refuge, our original,
Our God, all times before:
Such *quert* thou'ere the mountains birth,
Or fabrick of the peopled earth,
And art for evermore.
But frail man, daily dying, must
At thy command return to dust:
Or should he ages last;
Ten thousand years are in thy sight
Like the short watches of the night,
Or as a day that's past.

He by time's torrent's swept from hence:
(An empty dream which mocks the sense
And from the fancy flies)

Such as the beauty of the rose
Which in the dewy morning blows,
Then droops e'er eve and dies.

Thro' daily anguish we expire,
Thy wrath proves a consuming fire
To our offences due:

Our sins, although by night conceal'd,
By shame and fear, are all reveal'd
And naked to thy view.

Thus in thy ire our years we spend
Like a tale (swiftly told) they end,
Nor but to seventy last:

Or to eighty they arrive,
We then with age and sickness strive,
Cut off with rapid haste.

Who knows the terror of thy wrath,
Or to thy dreadful anger hath
Proportion'd his due fear?

Teach us to number our frail days,
That we our hearts to thee may raise,
And wisely sin forbear.

Lord, O how long! at length relent,
And of our miseries repent!
Thy early mercy show!

That we may unknown comfort taste,
And for long days in sorrow past
As long of joy bestow.

Thy wonders of accusom'd grace
Shew to thy servants, on their race
Thy chearful beams reflect:

Let on our souls thy glory shine,
Bless our weak works with aids divine,
And by thy hand direct.

*On the Death of Old HENDRICK,
Sachem of the Mohawks.*

By W. RIDER.

"*Præliis audax, neque te Silebo.*" HOR.
*H*endrick, bold Sachem of the Mohawk
race!

More fam'd for virtue, than thy noble place:
Tho' fall'n a sacrifice in freedom's cause,
Still shalt thou live and still demand applause.
Thy valiant tribe shall catch thy gen'rous
flame,

Avenge thy death, and dignify thy name.
Britannia's sons shall in the vengeance join,
Tread in thy steps and wish a fate like
thine;

Whilst vanquish'd *Gaul* shall own with
envious pain,
Who dies for freedom ne'er can die in vain.

*The Speech of HENDRICK's Son,
on hearing of his Father's Death.*

By the same.

THO' lost to sight, within this filial
breast

Hendrick still lives, in all his might confest:
Then learn, ye *SAVAGES*, this fatal arm to
shun.

Too soon you'll feel that I am *Hendrick's*
son.

*Extemporal VERSES on the late
EARTHQUAKE at LISBON.*

TO check the vices of an impious age,
Th' avenging pow'r of heav'n, exerts
its rage;

Its force tremendous, rends the lab'ring
ground,

All *Europe* shakes! and nature trembles
round!

See frightful scenes of new-born horrors rise!
Whose distant shock, is felt with dead sur-
prise.

With horrid chasm, earth dilated wide,
Swallows vain man, and levels earthly pride.
All sink promiscuous in one common grave;
And the proud peer, lies buried with the
slave.

See! stately palaces and lofty tow'rs,
Th' insatiate gulph, with greedy haste de-
vours.

Hark! heroes groan beneath the pond'rous
mass,

Whose dying pangs, all modes of death sur-
pass.

See tender mothers, clasp their infant race!
See falling ruins, part their fond embrace!

Behold men struggle, hear their dreadful
cries!

Heart-rending sounds, and sights which
pierce our eyes.

Lo! bursting flames, their fiery rage expand,
And burn the remnants of a ruin'd land.

See desolation all its terrors spread!
And ancient *Chaos* rear its awful head.

Tho' natural causes, may perchance com-
bine

To make this ravage, without aid divine,
Yet heav'n's vindictive will, its anger shews,
And bids that ruin, which it don't oppose.

N. B. *The Gentleman who desired to know if his poetical Correspondence would be acceptable, may be assured it will be greatly so to us; as we doubt not but it will give Pleasure to the Generality of our Readers.*

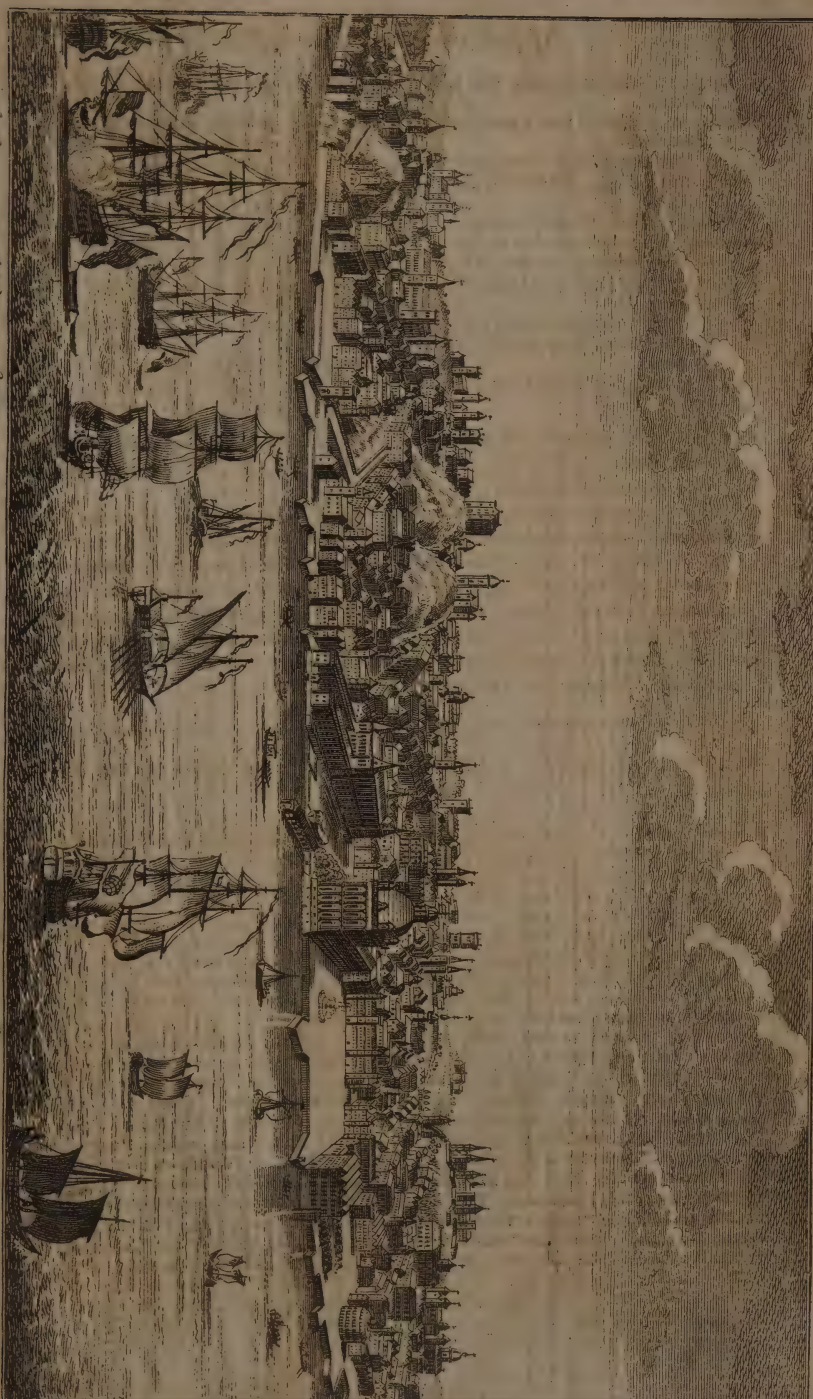
N. B. *We have received many Answers to most of the remaining Questions, which we shall insert as far as the Limits of our Plan will admit, and as much to the Honour and Credit of our learned and ingenious Correspondents as possible, though not so much as they deserve.—We beg leave to advertise some of our Contributors, that it is not consistent with our Design, to insert such Questions as are common or already published in Books, nor such as are very difficult and prolix, unless very useful at the same Time: Since a rational Amusement, and the public Emolument are the Points in View in these Mathematical Exercitations.*

A Description of the City of LISBON, as it appeared before the late terrible Earthquakes.

LISBON, lately the Capital of Portugal, and a City of the most extensive Trade in Europe, except London and Amsterdam, was situated on the Northern Bank of the *Tagus*. It stood on seven Hills, and when viewed from the River, or the Eastern Shore, afforded a fine Prospect, the Buildings winding with the *Tagus*, and rising gradually from it, up the Hills. Nor was the Prospect less entertaining from the City, where was seen a River three Miles over, filled with Ships of almost every Nation in Europe, and beyond it, a delightful Country intermixed with Towns and Villages. The City which was about six Miles long, was surrounded by a single Wall, on which were seventy-seven Antique Towers of no great Strength. On the River-side the Wall had 26 Gates, and on the Land-side seventeen. The City had also a Castle, a strong antient Fabric that stood on one of the highest Hills, and was chiefly remarkable for its Largeness, and its being built in the *Moorish* Taste. The Houses of the Nobility and Gentry, were elegantly built with Stone, had large

Gardens, and made a beautiful and stately Appearance; but most of those belonging to the common People were old and mean; however, those that had been rebuilt made a better Appearance. The City had 40 Parish Churches besides the Cathedral, which standing on one of the Hills, had, at a Distance, a grand Appearance. It was, however, a heavy *Gothick* Structure; but was richly adorned within. This City also contained twenty-five Monasteries, eighteen Nunneries, besides about 130 Fraternities of Laics who had Chapels, and kept Priests to officiate in them. There were also several large Hospitals. The Royal Palace had a grand Appearance on the Banks of the River; from the Windows of which might be seen large Fleets of Ships at Anchor, and others perpetually sailing in and out of that spacious Harbour. This Palace formed one Side of a fine Square; the Custom-house, Corn-market, and Meat-market, &c. formed the others. In this Square they had their Bull-fights, at which all the Nobility and Gentry were present. And here also were per-

Engraved for the General Magazine of Arts & Sciences, Printed for W. (Went) at Temple-Bar.



A General View of the CITY of LISBON the Capital of the Kingdom of Portugal

performed the terrible Execution of those who were given up to be burnt, or rather roasted alive by the Inquisition. But the noblest Square in the whole City was that of the *Refaja*, which had the Inquisition at the Upper-end of it.

The Streets were most of them exceeding narrow, and some of them very steep: Those on the Sides of the Hills were kept clean by the Rains; while those on the Level were intolerably nasty.

The Harbour was capable of containing ten thousand Sail of Ships, and the largest Vessels might ride with Safety in 18 fathom Water before the Palace. Its entrance was defended by two Forts, *St. Julian*, which is built on the Shore, and opposite to it, *Terre Castel*, which is erected on a Bank surrounded with Water. Nature has also provided another Defence, which is the Bar, very dangerous without the Assistance of an experienced Pilot. Nearer to the City there was a third Fort called *Terre de Beleen*, which stood on a Bank in the River, that is only accessible by Land at low Water.

A particular Account of the late dreadful Earthquake, collected not only from what has been already published, but from several private Letters: With a Comparison between that and some former Earthquakes, and a Theory of Earthquakes, accounting for these terrible Phenomena.

IT is observable, that in the Year 1531, there was an Earthquake at *Lisbon*, by which, about 14,000 Houses were overthrown, and 600 more were so terribly shaken, that they were ready to fall, and many of their Churches were levelled with the Ground. The like Calamity happened to that City about 200 Years before.

From the perspective View of *Lisbon*, and the above Description of that City, a very distinct Idea may be formed of *Lisbon*, as it appeared on the Morning of the 1st of November. On that fatal Morning the Sky was serene, and there was a perfect Calm, when at 57 Minutes past Nine, a Noise was heard rolling along the Streets, like the rattling of Coaches, and at the same Time the Earth shook with a violent undulating Motion. In an Instant the whole City exhibited a Scene of the most dreadful Confusion. The large Key near the Custom-house, piled up with Goods, which had been lately landed from the *Brazil* and *India* Fleets instantly sunk, and what is still more dreadful, about 600 Persons who were standing

upon it sunk with it, and perished, and where it stood is now deep Water. The People rushed into the Streets, calling upon Heaven for Mercy, and ran to escape the impending Ruin by flying to one of the Squares or into the Country: But in this Attempt many were killed by the Showers of Tiles and Stones, or crushed to death by the Fall of the tottering Buildings. A Crowd were in an Instant pressing forward to the *Terrera de Passa*, the Square by the King's Palace, with the Hopes of getting on board some of the Ships, when they instantly drove back, terrified by the sudden swelling of the Tagus which rose 20 or 30 Feet, and as suddenly retired, leaving Vessels in six fathom Water on the Ground, but the Sea presently after returned in a prodigious rolling Wave, and this ebbing and flowing was repeated 4 several Times, sinking some Boats, and washing away all the Timber, Masts, Casks, and other Stores out of the King's Yard. The Sea at the Bar broke Feather-white, as if agitated by a Storm: And the Castle of *Rugio*, it is said, was in such Danger from the swelling Waters, that the Garrison fired several Guns, as Signals of Distress. In the City the Dust raised by the falling Houses, so obscured the Sun, that for some Moments it was as dark as the blackest Night, and in an Instant there were no Streets left standing. The Clouds of Dust however dispersed, and there was now a momentary Cessation, in which some embraced and congratulated each other with Tears; while others lamented the Loss of their Wives, their Husbands, their Children, and their Friends: Many escaped as by Miracle, and crawling out of the Rubbish joined the Rest: While some wounded and others dying, filled the Air with their Groans and Prayers. After a few Moments, a second Earthquake, put a Stop to the Congratulations of Friends and Relations, during which the few scattered Houses that were still standing, bent too and fro like the Mast of a Ship in a Storm.* Congratulations were now turned to Petitions for Mercy; and when that was over, those who were still safe, scrambled as fast as they were able over the Ruins: But on their approaching the Churches found the highest Cause for Gratitude, while they were filled with Horror, at seeing the Multitudes wounded by the fall of the Roofs of those spacious Fabrics; the Clergy running about over the Ruins, to confess and absolve those who were still alive; and on all Sides miserable Objects groaning and expiring in Agony:

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* We have borrowed several of these affecting Particulars from a Letter to Mr. Joseph Fowke, wrote by his Brother, a Person of strict Veracity; and who gives a very affecting Account of the Deliverance of his own Family, and that of his Brother's.

Agony: Others lying dead. Soon after there was a third violent Earthquake; which obliged those who were endeavouring to es-

cape from these dreadful Scenes of Horror, to lie down or kneel, none being able to keep on their Feet.

(To be continued in our next.)

A CHRONOLOGICAL MEMOIR of Occurrences.

For *D E C E M B E R* 1755.

THE Jesuits, who have for a considerable Time governed Paraguay, (a very extensive Province of South America, 1500 Miles in Length from North to South, and almost as much in Breadth) have lately set up one of their Order as King, under the Name of Nicholas I. The Government of this Country, which they had privately, and with great Art usurped from the Spaniards, was carried on in the Manner of a Commonwealth: But this new Monarch, in return for the Zeal his Brethren has shewn in investing him with Royalty, has driven the whole Order out of the Country. This audacious Step of the Jesuits has exaspera-

ted the King of Spain to such a Degree, that he has disgraced Father Ravago his Confessor, who is a Priest of that Order: And a considerable Body of Troops are speedily to embark for Buenos Ayres in order to reduce the new Sovereign, and if possible to bring him to Justice.

The King of Spain has sent 40,000 Pistoles to Lisbon, to be distributed among the Sufferers, and ordered the Frontier Towns to supply them with Provisions. The Queen Dowager hath also sent them large Sums; and it is not doubted that all the Nobility will follow their Prince's Example on this Occasion.

L O N D O N.

Nov. 28. *The following Message from his Majesty was sent to both Houses of Parliament; together with a Letter from Sir Benj. Keene, his Majesty's Ambassador to his Catholic Majesty.*

HIS Majesty, having received from His Ambassador at Madrid, a certain Account of the fatal and deplorable Event which happened at Lisbon on the first Instant, by an Earthquake, which has laid Waste almost the whole City, and destroyed many Thousands of the Inhabitants; in consequence whereof, those who remain must be reduced to the utmost Distress: And His Majesty, being moved with the greatest Concern for so good and faithful an Ally, as the King of Portugal, and with the utmost Compassion for the Distresses, to which that City and Kingdom must be reduced; wherein great Numbers of His Majesty's own Subjects were resident, and many more interested; recommends to the House of Lords the Consideration of this dreadful and extensive Calamity, which cannot fail deeply to affect the Hearts of all Persons, who have any Sense of Religion, or Humanity; and desires the Concurrence and Assistance of the House of Lords, in sending such speedy and effectual Relief, as may be suitable to so afflicting and pressing an Exigency.

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On which the Lords ordered, That an Humble Address be presented to His Majesty, to return Him the Thanks of that House, for His Most Gracious Message; and

to express their just, and high Sense of His Majesty's Royal Concern for the great Misfortune that has befallen His Majesty's Good and Faithful Ally, the King of Portugal; and for His generous Compassion expressed for the Miseries of the unhappy Sufferers, by that dreadful and extraordinary Calamity, which is so agreeable to His Majesty's known Humanity, and Greatness of Mind.

To declare how deeply they are affected with this melancholy and deplorable Event, and to assure His Majesty of the hearty Concurrence and Assistance of that House, in sending such speedy and effectual Relief, as may be suitable to so afflicting and pressing an Exigency.

The Commons, upon receiving the same Address, resolved *nemine contradicente*, That that House would enable His Majesty to give such Assistance to the distressed People of Portugal, as His Majesty should think fit; and that such Expences as should be incurred by His Majesty, in relieving the Misery to which they might be reduced, should be made Good out of the next Aids,

The Government hath sent 30,000*l.* in Portugal Gold, and 20,000*l.* in Silver (Dollars) to the Relief of the Portuguese; 2000 Barrels of Rice, a great Quantity of Corn and Flour, a large Cargo of Beef from Ireland, with many other Necessaries, all which are at the Disposal of his Portuguese Majesty.

Lately at Nettlebed in Oxfordshire, a very large Pond, which they call Wombone, was

at Eight in the Evening quite full of Water, add next Morning quite exhausted. Upon Examination a great Part of the Bottom of the Pond appeared to be dropt in the Earth. Many searched with long Poles, but could not find the Bottom of the Cavity. As this happened in the Night, the People thereabouts fancy that it was occasioned by a Shock of an Earthquake.

Extract of a Letter from Plymouth, Dec. 2.

“Our Edifstone Light-House is on Fire, and we fear all will be burnt to the Water-Edge, and three Keepers lose their Lives. We see nothing but a great Smoke, the Horizon being very thick, nor can any Boat get there.”—This may prove fatal to many a good Ship; to prevent which we insert it.

“There are above thirty Sail of the Line here, and we have 4500 French Prisoners, and 100 Sail of their Ships in this Harbour only.”

4. Was held a General Court of the Societies of the City of London, of and for the Mines Royal, and of and for the Mineral and Battery Works, at their House in Bush-Lane, Cannon-street, for the Election of Governors and Assistants under the Mineral and Battery Works Charter for the Year ensuing, when the following Gentlemen were unanimously chosen, viz.

John Porter, Esq; Alderman, Governor,
Mr. Joshua Readshaw, Dep. Governor.

ASSISTANTS,

James Adams, Esq;	Mr. M. Kuick Van
Tho. Duckett, Esq;	Mierop,
Mr. Michael Deane,	Mr. Ralph Morrifon,
Mr. George Hale,	Mr. John Oddy,
Richard Horn, Esq;	Mr. Tho. Roberts,
Israel Jalabert, Esq;	Miles Smith, Esq;
	Mr. Roger Staples.

A Man was found dead in a Ditch near Highgate, with seven or eight Stabs in his Throat, three on his left Breast and Side, a large cut on his Head, and several Bruises about his Body. About 11 o’Clock the Night before, a cry was heard as coming from the Place where the Body lay, of Lord help me! for Christ’s Sake help me! don’t Murder me! and immediately after another Voice was heard to say, Damn him, we have done for him. The Coroner’s Jury have since brought in their Verdict, Wilful Murder against Persons unknown.

Walter Dixon is committed to the New Gaol, Southwark, by William Clark, Esq; charged on the Oath of Mr. William Davidson, with murdering Anthony How, Servant to a Tobacconist in Southwark. The Prisoner belonged to a Prefs-Gang,

and beat the Deceased so unmercifully in Tooley-street, a few Days ago, that he died of his Wounds in St. Thomas’s Hospital.

6. The Rev. Mr. Grierfon, late Minister of the Savoy, took his Trial at the Old Bailey, which lasted 4 Hours, when he was convicted for Marrying several Persons contrary to the Act for preventing clandestine Marriages, and ordered to be transported for 14 Years. ’Tis said he has married 1400 Couple since the Act took Place, which Marriages, by his Conviction, are all void in Law, and the Offspring of Course illegitimate, and incapable of ever inheriting their Father’s Estates.

9. 1200 Quarters of Wheat, and 1100 Quarters of Wheat Meal were shipped for Portugal.

From Bern we are informed, that on the 9th Instant, between the Hours of Two and Three in the Afternoon, they had there a pretty violent Shock of an Earthquake, which lasted about one Minute. It was more sensibly felt in some Districts, of the Town than others, particularly the lower Part, and in those Houses that stand near the River. The Letters that are since come in from the Pays de Vaud, which borders on the Lake of Geneva, from this last City, and from several Parts of Switzerland (Basil in particular) mention this Phenomenon, and take Notice of it, as having been observed pretty near about the same Hour. We do not however hear of its having caused any Damage; but the Consternation is represented as having been general, and greater than can well be expressed, from the Impression still left on most Minds, by the fatal Catastrophe that lately happened at Lisbon.

10. His Majesty went to the House of Peers with the usual State, attended in the State Coach by his Grace the Duke of Dorset, and the Earl of Hertford, and gave the Royal Assent to the Mall Bill, &c.

The same Day his Royal Highness the Prince of Wales was several Hours at the House of Peers to hear the Debates.

Sessions ended at the Old Bailey, when six Prisoners received Sentence of Death; two to be transported for fourteen Years, and twenty-six for seven Years; three to be whipped, and two branded.

This Morning a new-born Infant was found dead in a small Box, under one of the Pew-seats of St. Clement’s Church, with Marks of Violence on the Body, supposed to have been concealed there the Night before at Evening Prayers.

20. There have been killed since the 24th of September last for the Use of the Navy, at London, Portsmouth, Plymouth, and Dover, for Sea Stores and Harbour Meat, 8000 Oxen and 18,000 Hogs, besides Mut-

ton; and it is computed that the several Contracts advertised this Week for Sea Stores and Harbour Meat, to be taken this Month, and to be killed between this and May next, will amount at least to 10,000 Oxen; and 36,000 Hogs more, besides Mutton.

23. His Majesty went to the House of Peers with the usual State, and gave the Royal Assent to the Land Tax, Mutiny and Desertion Bills, &c. and then the House of Peers adjourn'd to the 19th of January, and the House of Commons to the 16th of the same Month.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane.

- Nov. 26. *Fair Quaker of Deal.*—*The Genii.*
 27. *The Rehearsal.*—*The Chaplet.*
 28. *The Chances.*—*Tom Thumb.*
 29. *The Careless Husband.*—*Genii.*
 Dec. 1. *Love for Love.*—*Genii.*
 2. *Hamlet.*—*Anatomist.*
 3. *Merops.*—*Genii.*
 4. *King Lear.*—*Lying Valet.*
 5. *Love makes a Man.*—*Genii.*
 6. *Every Man in his Humour.*—*King and Millar.*
 8. *Richard III.*—*Genii.*
 9. *King Lear.*—*Anatomist.*
 10. *Fair Quaker of Deal.*—*Genii.*
 11. *The Alchemist.*—*Chaplet.*
 12. Ditto. — Ditto.
 13. *The Conscious Lovers.*—*Genii.*
 15. *The Chances.*—*Tom Thumb.*
 16. *The Earl of Essex.*—*Devil to Pay.*
 17. *Every Man in his Humour.*—*Chaplet.*
 18. *King Henry VIII.*—*The Oracle.*
 19. *The Rehearsal.*—*K. and the Millar.*
 20. *The Alchemist.*—*Oracle.*
 22. *Fair Quaker of Deal.*—*Genii.*
 23. *Barbarossa.*—*Anatomist.*
 24. *King Henry VIII.*—*Oracle.*
 25. Ditto. — Ditto.

Covent-Garden.

- The Revenge.*—*The Contrivances.*
The Constant Couple.
Revenge.—*Harlequin Skeleton.*
Provoked Husband.—*Harlequin Skeleton.*
King Henry IV.—*Harlequin Skeleton.*
The Merchant of Venice.—*Lying Valet.*
Henry V.—*Damon and Phillida.*
Double Gallant.—*Harlequin Skeleton.*
Conscious Lovers.—*Cheats of Scapin.*
Romeo and Juliet.—*The Virgin unmasked.*
Macbeth.—*Cheats of Scapin.*
Double Gallant.—*Double Disappointment.*
The Nonjuror.—*Contrivances.*
Lady Jane Gray.—*Mist in her Teens.*
The Orphan.—*Double Disappointment.*
The Orphan.—*Devil to Pay.*
Zara.—*The Lying Valet.*
Recruiting Officer.—*School Boy.*
Merry Wives of Windsor.—*What d'ye call it.*
Zara.—*Devil to Pay.*
The Miser.—*Mist in her Teens.*
The Earl of Essex.—*Cheats of Scapin.*
Theodosius.—*Lying Valet.*
Way of the World.—*What d'ye call it.*
Macbeth.—*Harlequin Skeleton.*
 Ditto. — Ditto.

BIRTHS.

Nov. 17. The Dauphiness of France, delivered of a Prince.

21. Lady of Geo. Onslow, Esq;—of a Son.

22. Lady of Wm. Drake, Esq; Member for Agmondesham, Bucks—of a Son.

Dec. 1. Countess of Plymouth—of a Daughter.

MARRIAGES.

Nov. 13. Arthur Holdsworth, Esq; Governor of Dartmouth-castle, married to Miss Taylor of Denbury.

27. Hon. Sam. Hawley, Esq;—to Miss Anderson of Aldermanbury.

Charles Boyton, Esq;—to Miss Henrietta Ward of Kensington.

Dec. 1. Mr. John Gardner in the 80th Year of his Age—to Miss Kitty Cookman, a young Woman of 20, at Burford near Salisbury.

Owen Brereton, of Lincoln's Inn, Esq; to Miss Whitmore, only Sister to the Hon. Sir Tho. Whitmore, Knt. of the Bath.

12. Sir Charles Apgill, Knt. Alderman of Candlewick Ward—to Miss Pratveil, Daughter of Dav. Pratveil, Esq;

DEATHS.

Nov. 9. Tho. Marshall, a Drummer, aged 105, and 90 Years in the Service.

18. Lady of the E. of Peterborough.

Lady of Nath. Newnham, of Streatham, Esq;

20. Hon. Charles Compton, Esq; Brother to the E. of Northampton, and Member for Northampton.

29. Lady Shaw, Relict of the late Sir John Shaw, Bart.

30. The Rt. Hon. the E. of Roseberry, in Scotland.

Dec. 1. Mrs. Purcell, Body Laundress to his Majesty.

— Clifton, Esq; Brother of Sir Robert Clifton, Bart.

Mr. Movellan, Brother to the Lady of Andrew Stone, Esq; Sub-governor to their Royal Highnesses the Prince of Wales and Prince Edward.

4. His Grace Wm. Cavendish, Duke of Devonshire, Marquis of Hartington, E. of Devonshire, and Baron Cavendish of Hardwick, &c.

7. John Hardman, Esq; Member for Liverpool.

Hon. Wm. King, Esq; eldest Son of the Ld. Kingston.

9. Rt. Hon. Henrietta Cavendish Holles, Countess Dowager of Oxford, and only Daughter to John Duke of Newcastle.

Civil and Military Preferments.

Rt. Hon. Sir Geo. Lyttleton, Bart. appointed one of the Commissioners of the Treasury, and Chancellor of the Exchequer, in the room of the Rt. Hon. Hen. Legge.

Sir Tho. Robinson, keeper of the Great Wardrobe, in the room of

Ld. Viscount Barrington, Secretary at War, in the room of the Rt. Hon. Henry Fox.

Rt. Hon. the E. of Darlington and Tho. Hay, Esq; Paymasters of the Forces.

John Fitzwilliam, Esq; Col. of the 2d Reg. of Foot.

Lieut. Gen. Fowke, Col. of the 14th Reg. of Foot, late Braddock's.

Ph. Sherard, Esq; a Capt. in the 1st Reg. of Foot Guards; Nevil Tatton, Esq; Capt. Lieut. Jos. Otway, and Henry Wickham, Esqrs; Lieutenants.

Tho. Hargrave, Esq; Capt. in the Reg. of Foot, commanded by Col. Holmes.

John Hale, Esq; to be Major to the Reg. of Foot, command by Maj. Gen. Lascelles.

Wm. Robinson, Esq; Lieut. Col. to the Reg. of Foot, commanded by Lieut. Gen. Skelton; John Salt, Esq; Major; ——— Turner, Esq; Capt. Geo. Cockburne, Esq; Capt. Lieut. and Lawrence Reynolds, Esq; Lieut.

James Hamilton and James Graham, Esqrs; Capts. Wm. Wash and Hugh Lloyd Lieuts. in two Independent Companies of Invalids to be forthwith raised.

Cha. Saunders, Tho. Slade, W. Eatery, Dan. Devert, Rich. Hall, Rob. Osborn, Geo. Adams, Arthur Scott, Fred. Rogers, Rich. Hughes, jun. and Tho. Cooper, Esqrs; Commissioners of the Navy.

Wm. Blair, Matth. Kenrick, John Barnard, Rob. Thompson, and Geo. White, Esqrs; Commissioners of the Stamp Duties.

Edw. Young, Hen. Kelfall, Joseph Richardson, Christopher Rigby, Rich. Frankland, and J. Trenchard, Esqrs; Commissioners of Taxes.

The Rt. Hon. Granville Earl Gower, was, by his Majesty's Command sworn of his Majesty's most Hon. Privy Council, as also Keeper of the Privy Seal, and took his Place at the Board accordingly.

ECCLESIASTICAL PREFERMENTS.

Mr. Edw. Innes, to the Rectory of Feltwell St. Mary, in Norfolk.

Mr. Jerem. Griffith, to the Rectory of Kentisber, Devonshire.

Rich. Morgan, B. A. to the Vicarage of Abbots Noon, Bucks.

Henry Chalmers, A. B. to the Vicarage of Earls Colne, Essex.

Henry Hufticke, M. A. to the Vicarage of Brease, with the Parishes of Gumwell and Cures, Cornwall.

Rich. Strutton, B. A. to the Rectory and Vicarage of St. Mary, in the Isle of Wight.

Mr. Henry Best, to the Vicarage of Edington, Lincolnshire.

Mr. James Adamson, to the Rectory of Barton, Norfolk.

Wm. Bunnington, D. D. to the Rectory of Haunchfort, Lincolnshire.

Mr. Arthur Hole, to the Vicarage of Corfton, near the City of Bath.

Mr. Wm. Rowell, to the Vicarage of Aldborough in Suffolk.

Mr. Wm. Jackson, to the Rectory of Hellefden, with Drayton annexed, in Norfolk.

Mr. John Longe, to the Rectory of Hackford, Norfolk.

Mr. John Hutchingson, to the Living of Felmerham cum Pavenham, in Bedfordsh.

Tho. Willoughby, B. A. to the Living of Milton, Yorkshire.

Hen. Ward, B. A. presented to the Rectory of Yardley, Northamptonshire.

Tho. Ryder, B. A. to the Vicarage of Milbourn, Hants.

Mr. Tealle, to the Living of St. John's Horsley-down, Surry.

John Taylor, M. A. to the Vicarage of Hartley, Gloucestershire.

John Blakes, M. A. to the Rectory of Catton, Yorkshire.

Mr. Edm. Nelson, to the Rectory of Burnham Thorpe, in Norfolk, and also to the Rectory of Burnham St. Albert.

Dispensations to hold two Livings.

Charles Parker, B. L. to hold the Vicarage of Tirley, Gloucestershire, with the Rectory of Hasfield, in the same County.

James Harwood, M. A. to hold the Rectory of Cliffe, in Kent, with the Rectory of Dartford, Kent.

Edw. Darrell, B. L. to hold the Rectory of Ibsstock, Leicestershire, with the Rectory of Upingham, Rutland.

Rich. Cotton, M. A. to hold the Rectory of Llandisfel, Montgomeryshire, with the Rectory of Moor, Shropshire.

Wm. Symonds, B. L. to hold the Vicarage of Eunev Lunant, with the Vicarage of Erey, alias Earth, both in Cornwall.

B—KR—TS.

Nov. 29. John Osborn, of Blackman-street, Southwark, Victualler.

William Bradley, of Size-Lane, London, Merchant.

William Vaughan, of Stafford, Linnen-Draper.

Sir Chares Le Blon, of London, Merch.

Dec. 2. John Smith, of Gloucestershire, Grocer.

6. John Tymbs, of Worcester, Hatter.

9. Will. Chorley, of Warrington, Tann.

13. John Perkins, of Fenchurch-street, Upholsterer.

Thomas Roalfe, of Canterbury, Harnes-Maker.

Henry Noble, of St. Margaret Westminster, Victualler.

16. George Yardley, of Worcester, Glov.

Lewis Combrune, of Aldersgate-street, London, Merchant.

20. Tho. Sherring, of St. James Duke's Place, Victualler.

23. William Walmsley, of Ormskirk, Lancashire, Chapman.

Francis Ellwood, of Cheapside, London, Chinaman.

Joseph Duncan, of Birmingham, Chapman.

COURSE of EXCHANGE.

London, December 23, 1755.

Amsterdam, ———	36	
Ditto at Sight, ———	35	8a7
Rotterdam, ———	36	1
Antwerp, ———	no Price	
Hamburgh, ———	34	9 2½ Uf.
Paris, 1 Day's Date, ———	31	1 8
Ditto, 2 Ufance, ———	30	7 8
Bourdeaux Ditto, ———	30	1 ½
Cadiz, ———	38	1 8
Madrid, ———	38	1 8
Bilboa, ———	38	
Leghorn, ———	47	1 4
Naples, ———	no Price	
Genoa, ———	no Price	
Venice, ———	49	1 4
Lisbon, ———	5s	4d ½
Porto, ———	5s	3d ½
Dublin, ———	7	8

The SUPPLEMENT to this Magazine, with a Frontispiece, Title Pages, Indexes, &c. will be published the 15th Instant: By W. Owen, at Temple-Bar.

BILL of Mortality from Nov. 18. to Dec. 16.

Buried		Christened	
Males	909	Males	585
Females	928	Females	532
Under 2 years old		Buried,	
Between 2 and 5		Within the walls	
5 and 10		Without	
10 and 20		Mid. and Surry	
20 and 30		City & Sub. West.	
30 and 40			
40 and 50			
50 and 60			
60 and 70		Weekly Nov. 25.	
70 and 80		Dec. 2. 451	
80 and 90		9. 500	
90 and 100		16. 497	
100 and 109		1837	
		1837	

Observat. on the Weather, at Temple Bar.

	Baro-meter.	Therm.	Pluvia-meter.	Hygro-meter.
Nov. 29	29 : 8	19	12 : 4	84 Moist.
30	29 : 7 ¾	19	2 : 0	89
Dec. 1	29 : 4	18 ½	0 : 0	88
2	29 : 6	18	1 : 1	88
3	29 : 6 ½	17	0 : 4	89
4	29 : 7	17	0 : 0	90
5	30 : 0 ½	17 ½	1 : 0	90
6	30 : 1 ½	17 ½	0 : 0	88
7	30 : 1	18 ½	0 : 0	90
8	29 : 9 ½	22	0 : 0	
9	29 : 9	18 ½	0 : 0	
10	29 : 8 ½	24	0 : 0	90
11	29 : 7	21	3 : 6	88
12	29 : 6 ½	20	19 : 4	86
13	29 : 6 ¾	19 ½	1 : 0	84
14	29 : 6 ¼	19 ¾	3 : 2	88
15	29 : 6	20	8 : 3	86
16	29 : 3 ½	21 ½	25 : 5	88
17	29 : 3	21 ½	15 : 3	
18	29 : 3 ½	22 ½	12 : 7	87
19	29 : 4	23	0 : 0	84
20	29 : 4	22	24 : 2	76
21	29 : 5	21	7 : 5	78
22	30 : 0	19 ½	0 : 4	80
23	30 : 0	19 ½	2 : 0	90
24	30 : 1	19 ½	7 : 0	84
25	29 : 9 ½	21	3 : 4	
26	29 : 7 ½	22	1 : 5	
27	29 : 7	24 ½	0 : 6	

BOOKS published.

AN Address to the Clergy, concerning a Provision for their Widows, &c. 6d. *Griffiths.*

Account of the Troubles of *Persia* and *Georgia*, 2s. *Baldwin.*

Arguments against the Athanasian Creed, 2s. *Henderson.*

Athanasius's Creed briefly paraphras'd, 2d. *Cox.*

Atlas Methodique; containing 53 Maps, Folio, 3l. 3s. Sheets. *Millar.*

Bradbury's true State of his Case, 1s. *Lewis.*

Boyce's Ode to the Marquis of Hartington, 6d. *Newbery.*

Character of the late Mr. William Bruce, 1s. *Griffiths.*

Child's Delight, or little Master and Miss's instructive Companion, 1s. *Hodges.*

Country Coquet; or Miss in Breeches. A Ballad Opera, 1s. *Reeve.*

A third Volume of the Bishop of London's Discourses, preached at the Temple, 5s. *Whiston, W. Owen, and Baker.*

Dancer's Damn'd, or the Devil to pay at the old House, 6d. *Griffiths.*

Davenport's Psalm-singing Companion, 2s. 6d. *Crowder.*

Devil upon Crutches in England; or Night Scenes in London; a satirical Work, written upon the Plan of the celebrated *Diabole Boiteux* of M. le Sage. By a Gentleman of Oxford, 1s. 6d. *P. Hodges.*

Dissertation on the sensible and irritable Parts of Animals. By M. A. Haller, M. D. translated from the Latin by M. Tissot, M. D. 1s. 6d. *Nourse.*

Dissertations (Six) on different Subjects. By John Fortin, D. D. 4s. 6d. *Whiston.*

Dialogue between the Poet and his Friend, a Satire, 6d. *Carpenter.*

Demosthenis Orationes de Republica duodecim, cum Interpretatione Wolfianæ denuo castigata, & Notis historicis J. V. Luchisii. Edante Gulielmo Allen. Bathurst.

Essay on Inspiration. By John Dove, 2s. 6d. *Witber.*

Expedition of Major General Braddock; being Extracts of Letters from an Officer to his Friend in London, 6d. *Carpenter.*

Essay towards a new English Version of the Book of Job, from the original Hebrew, with some Account of his Life. By Thomas Heatb, Esq; 5s. sewed. *Millar.*

Epistle from Theophilus Cibber to David Garrick, Esq; 6d. *Griffiths.*

French Policy defeated. Being an Account of the Proceedings of the French in America for the last seven Years, and the Measures pursued to vindicate the Rights of the British Subjects, 1s. 6d. *Cooper.*

French King's Instructions to a French Spy, 6d.

Hodgson's Doctrine of Fluxions, founded on Sir Isaac Newton's Method, published by himself in his Tract upon the Quadrature of Curves. — Esteemed by good Judges to be one of the easiest and best Books for a Beginner extant, as containing a particular and universal Introduction of Exponentials and infinite Series, the direct and inverse Methods of finding Fluxions and Fluents, the various Constructions and Properties of Curves, Quadratures of Superficies, Cubatures of Solids, finding the Centers of Gravity and Percussion, &c. &c. discussed in a plain and methodical Manner, and easily to be understood by any one of an ordinary Capacity, tolerably versed in Arithmetic and common Algebra. 4to. 8s. bound. *W. Owen.*

History of my own Life, being an Account of many of the severest Trials imposed by an implacable Father upon the most affectionate Pair that ever entered the Marriage State, 2 Vol. 6s. *Noble.*

History of Lavinia Ravolins, 2 Vol. 6s. *W. Owen.*

Histoire de la Guerre 1742, par M. Voltaire. *Nourse.*

The Head-stone brought forth. Two Discourses occasioned by the Death of James Greenwood. By James Hartley, 6d. *Keith.*

King Pepin's Campaign. A Burlesque Opera, acted in Drury-lane, in 1745, 6d. *Reeve.*

Letter to a Friend in Italy, 1s. *Baldwin.*

Letter to a kept Mistress and her Keeper, 3d. *Carpenter.*

Letter to a noble Lord, concerning a new Discovery of the scandalous and pernicious Practice of Running-goods from France, 1s. *Jones.*

Letter from a By-stander to a Member of Parliament, examining the Necessity of keeping a large regular Land-force, 1s. 6d. *Robinson.*

Letter (2d) to the People of England, 1s. *Scott.*

Letter from Dr. Watts to Dr. Frewin on Blood-letting, 6d. *Keith.*

Letter to a Friend, giving an Account of the Ohio defeat, 6d. *Ward.*

London protected; or, the City and Liberties secured. Shewing the Necessity of a well regulated and nightly Watch, 1s. *Legg.*

Landen's Mathematical Lucubrations, 6s. *Nourse.*

Moral Poems. By the Authors of the Review, 1s. *Griffiths.*

Progress of the French, in their Views of Universal Monarchy, 1s. *Owen.*

EACH DAY'S *Price of* STOCKS, in DECEMBER 1755.

Books shut, is signified thus,

[illegible]

Miscellaneous Correspondence,
in Prose and Verse.

For *DECEMBER*, 1755.

MATHEMATICAL QUESTIONS *Answered.*

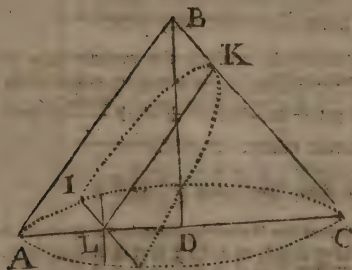
Questions 41 and 42, unanswered.

Question 43, answered by Mr. JOHN GOODHEAD.

PUT x and y = the Sine and Co-fine of $\frac{1}{2}$ the Sum of the Angles, at Base s and q = Sine and Co-fine of $\frac{1}{2}$ Diff. then will $qx + sy$ = Sine great Angle, and $qx - sy$ = Sine left \angle . Let p = the Perpendicular (Rad. = 1) then, as $qx + sy : p :: 1 : \frac{p}{qx + sy}$ = the left Side, and $\frac{p}{qx - sy}$ = the greater Side, and Base = $\frac{2pxy}{q^2x^2 - s^2y^2} \therefore \frac{2p^2xy}{q^2x^2 - s^2y^2}$ = 2s $\therefore p = \sqrt{\frac{2sq^2x^2 - 2s^3y^2}{2xy}}$, and consequently $\frac{p}{qx + sy} + \frac{p}{qx - sy} = \frac{2pxy}{q^2x^2 - s^2y^2}$ = d $\therefore p = \frac{q^4x^4 - 2q^2s^2x^2y^2 + s^2y^4 \times d}{2q^3x^3 - 2q^2s^2x^2y^2 - 2q^2x^3y - 2s^2xy^2} = \sqrt{\frac{2sq^2x^2 - 2s^3y^2}{2xy}}$ \therefore putting 1 = y^2 for x^2 , &c. the Value of y may be found.

This Question was also answered by Mr. H. C. R. S.

Question 44, answered by Mr. BADGER.



: KL, that is $\frac{2}{3}s\sqrt{6} : s :: \frac{2}{3}s\sqrt{6-v} : x = \frac{\frac{2}{3}s\sqrt{6-v}}{\frac{2}{3}\sqrt{6}}$, but by the Property of the Circle, $\frac{2}{3}sv\sqrt{6-v}v^{\frac{1}{2}} = LI = y$, whence the Area of the Semi-parabola $= \frac{2}{3}xy = \frac{\frac{2}{3}s\sqrt{6-v} \times \frac{2}{3}sv\sqrt{6-v}v^{\frac{1}{2}}}{\sqrt{6}}$, which is to be a Maximum, therefore $\frac{2}{3}s\sqrt{6-v}v^{\frac{3}{2}}$

PUT $AB = s = 20$ Inches, $BD = a$, KL
 $= x =$ Abfciss of the Parabola, LI its Se-
miordinate $= y$, $AL = v$, $3.1416 = q$, then is
 $ss - aa\frac{1}{2} = AD$, $qss - qaa = Bafe$, and
 $qssa - qa^3 =$ Sol. of the Cone which is to be

3
a Maximum, therefore $s a - a^3$ is a Maximum,
which, fluxed, becomes $s^2 \dot{a} - 3 a^2 \dot{a} = 0$.

Whence $a = \frac{s}{\sqrt{3}}$, which substituting for a ,

$ss - aa \sqrt{\frac{1}{2}}$ becomes $\frac{2}{3}ss \sqrt{\frac{1}{2}} = \frac{1}{3}s\sqrt{6} = AD$,
then (by sim. Triangles) $CA : AB :: CA - AL$

$$x = \frac{\frac{2}{3}s\sqrt{6}-v}{\frac{2}{3}\sqrt{6}}, \text{ but by the Property of the}$$

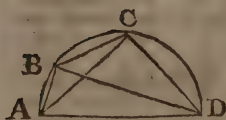
Hence the Area of the Semi-parabola $= \frac{2}{3} xy =$

is to be a Maximum, therefore $\frac{2}{3} \leq \sqrt{6} - \frac{1}{2}$

$\times v^{\frac{1}{2}}$ is a Maximum, the Fluxion of which $\frac{\frac{3}{2}s\sqrt{6-v}\frac{1}{2}\dot{v}}{2w^{\frac{1}{2}}} - \frac{3}{2} \times \frac{\frac{3}{2}s\sqrt{6-v}\frac{1}{2}\dot{v}}{2w^{\frac{1}{2}}} = 0$, which, reduced, becomes $\frac{3}{2}s\sqrt{6-v} - 4v = 0$, whence $v = \frac{1}{6}s\sqrt{6}$, which substituting for v in the former Equations, we have $x = \frac{3}{4}s$, $y = \frac{s}{\sqrt{2}} = \frac{1}{2}s\sqrt{2}$, and $\frac{3}{2}xy = \frac{1}{4}ss\sqrt{2} = 100\sqrt{2} = \text{Area of the Semi-parabola}$, and the whole Area $= 200\sqrt{2} = 282.8426$ Inches.

This Question was also answered by Mr. Wildbore, Mr. C. H. Mr. North, Mr. Bevil, Mr. Viger, Mr. Liddel, Mr. Beighton, Mr. Thompson, Mr. Spurling, Mr. H. C. R. S. and Mr. Allep.

Question 45, answered by Mr. WADDINGTON.



Since the greatest Area that can be included by the three given Lines, and any other right Line whatsoever, will be when those Lines form a Figure that may be inscribed in a Semicircle, and the required Line will be the Diameter thereof. Make $AB = 5 = a$, $BC = 3 = b$, $CD = 1 = c$, $AD = x$, $AC = e$, and $BD = u$; then $ac + bx = eu$, $x^2 - a^2 = u^2$, $x^2 - c^2 = e^2$, $a^2c^2 + 2abcx + b^2x^2 = e^2u^2$, $x^4 - x^2a^2 - x^2c^2 + a^2c^2 = e^2u^2$, $x^3 - xa^2 - xc^2 - x b^2 = 2abc$, $\therefore x^3 - 210x = 880$, and x will be found $= 16.25256+$, which is true to the last Place inclusive.

Per Trig. Radius $= 1A$,

$$x : 1 :: a : \frac{a}{x} = s, \angle ADB = \angle ACB = 17 \ 55 \ 04, \text{Compt.} = 72 \ 04 \ 56 = \angle A,$$

$$x : 1 :: c : \frac{c}{x} = s, \angle CAD = \angle CBD = 42 \ 35 \ 50 + 90 = 132 \ 35 \ 50 = \angle B,$$

$$\angle ACB + 90 = 107 \ 55 \ 4 = \angle C$$

$$\text{and } 90 - \angle GAD = 47 \ 24 \ 10 = \angle D$$

$$\text{Sum of the } \angle \angle = 360$$

Chains.

$$\text{Now } \frac{a\sqrt{x+axx-a}}{2} = \text{the Area of } \triangle ABD = 38.66075$$

$$\text{and } \frac{bcx \angle C}{R} = 2A; \text{ hence the Area of } \triangle BCD = 41.87561$$

A. R. Perches.

$$\text{Area of the Trapezia} = 80.53636 = 8 \ 0 \ 8.58176.$$

This Question was also answered by Mr. Wildbore, Mr. Stone, and by Mr. Goodhead.

The same answered by Mr. JOHN BEIGHTON, jun.

LET the Trapezia ABCD be inscribed in a Semicircle, making the variable Line AD the Diameter of the Circle, then it is demonstrated that its Area will be a Maximum; therefore by putting AD the Diameter $= x$, we get $x^2 = a^2 + b^2 + c^2 + \frac{2abc}{x}$; therefore $x = 16.254$, and the greatest Area $= 8$ Acres, nearly. Q. E. I.

Question 46, answered by Mr. JOSEPH FISH.

LET $3x$ = the Base, and $3x$ the Perpendicular of the Triangle, then is $2x + x$ = the longest Leg, and $2x + x$ the shortest, and per *Quest.* and the Proportions of the Figure $\sqrt{4x^2 + 4xx - 8x^2} = \sqrt{x^2 + 4xx - 5x^2} = b$, and reduced it is $3x^2 - 3x^2 = 4b^2$. Also $9xx = 2a$ per *Quest.* Hence $x = \frac{2a}{9x}$ and $x^2 = \frac{4a^2}{81x^2}$, which being written in the former Equation for x^2 , we have $\frac{12a^2}{81x^2} - 3x^2 = 4b^2$, and reduced, it is $4 + 1.8x^2b^2 = 0.0493a^2$, the Square being completed and evolved, we have this Theorem,

rem, $z = \sqrt{0.0493 a^2 + 0.4 b^4}$; — $0.6 b^2$ from whence, when a and b are known, the rest may be found.

This Question was also answered by Mr. Wildbore, Mr. Cave, Mr. Barker, Mr. H. C. R. S. and Mr. Goodhead.

New QUESTIONS to be answered.

Question 68. Proposed by CHARLES DYER, Shipwright.



THERE are several Methods of forming Rakeing-arches, some by Crofs-lines, others by Sines of Circles, both which will form an Half or Semi-Ellipsis, but none yet, as I know of, to find the Focis or Centers, whereby the Arch may be swept in with a Line or String. Suppose then, $AF = CD = \frac{b}{2}$, and $EL = \frac{1}{2} C$, being drawn from the Middle of FD , and perpendicular to A F , and $FD = AC = a$. It is required a general Theorem to find the Diameters and Centers, whereby the Arch FBD may be swept in with String and Pencil, so as to just touch the Lines AF , CD , AC , in the Points F and D , and the Middle of the Line AC , and to do it geometrically.

Question 69.

By Mr. ANTROBUS, Teacher of the Mathematics at Great Budworth.

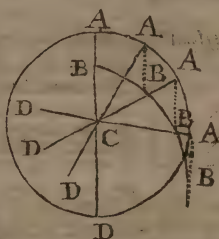
IN an oblique angled Triangle, given the Product of the two Sides 194, and their Difference 11.5, and the shortest Side is to the Base as 4 to 9. Quere the Sides?

Question 70.

By Mr. CAVE, at Walpole, Cambridgeshire.

I Have an horizontal Dial made for the Latitude $51^{\circ} 32'$ North, how must I set it to go true in the Latitude $53^{\circ} 15'$ North?

Question 71. By Mr. GOODHEAD.



SUPPOSE ACD a Pole fixed at C , and moving round the same as a Centre; to the End A suppose there is fastned a Rope and at the End of the Rope a Ball; 'tis required to find the

Curve $BBBB$ described by the Centre of the Ball B ?

Question 72. By Mr. RANGLES.

WHAT was the Time of the Day at London, on the longest Day, 1755, when the Height of a Man was but half the Length of his Shade? Also, what Hour on the same Day was the Man's Shade and his Height both equal, allowing for the Sun's Semi-diameter and Refraction, in both Cases?

Question 73.

By Mr. THOMPSON of Witherly-Bridge, Leicestershire.

A Parallelogram Field whose Perimeter is 40 Chains, is to be bought at two Guineas for every Chain of the Breadth, and one Guinea for every Chain of the Length: 'Tis required to find the Length and Breadth of the Field, so that a Person may buy the most Land for the least Money?

Question 74. By Mr. ELING, of Henley upon Thames.

A Gentleman at London would know to what Height he must be raised, to have a View of the English Fleet off Louisburgh? *Mr. E.* He supposes the Earth to be an exact Sphere, of 7970 Miles Diameter, that the Latitude of Louisburgh is about $45^{\circ} 40'$, and Longitude $59^{\circ} 40'$ West of London.

A SONG. By J. N. Set to Music by Mr. MOZZ.

Andante.

When first I saw my Fanny's Face, her Face alone de-

lighted me, her Face alone de-lighted me;

Possess'd of ev'ry out-ward Grace, I dread--ed Loss of

Liberty, I dreaded Loss of Liberty.

Unbless'd with Fortune's Smiles to move, I durst not tell her

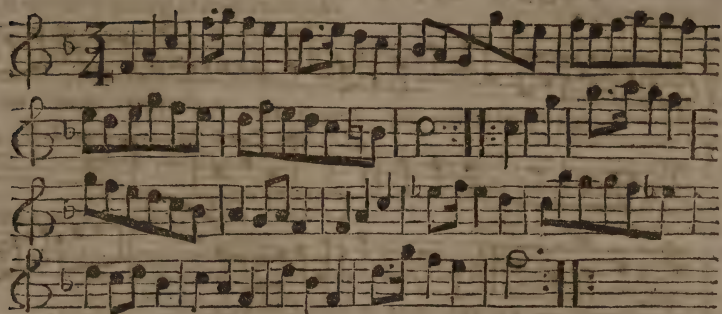
that I love, I durst not tell. her that I love.

And, oh! I found the heavenly Maid
 Had Charms of a superior Kind,
 Charms, such as Time can never fade,
 The Heav'n-born Beauties of the Mind.
 At Sense and Beauty so divine,
 What Heart so cold but burns like mine?

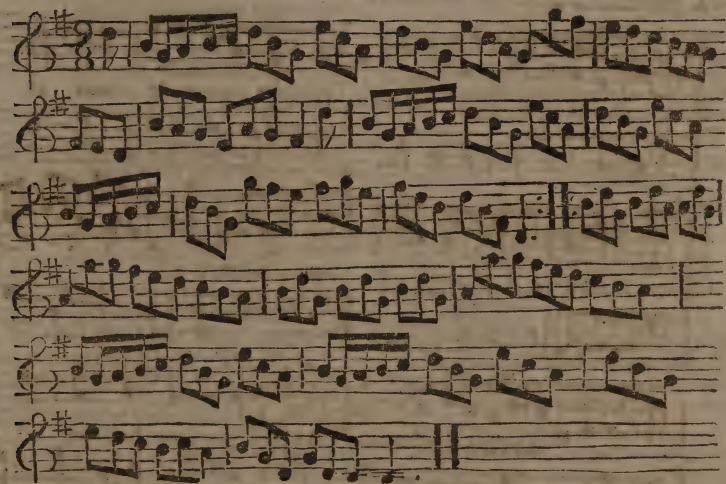
Lie still, fond Heart, nor blindly run
 On Miseries unknown before;
 But, as the *Person* does the Sun,
 At awful Distance her adore.
 Resign, fond Heart, to Fate's Decree;
 Such Virtues were not made for thee.

A new

A new MINUET.



POLLY pouts. A COUNTRY-DANCE.



Hey contrary Sides, then on your own Sides — 1st and 2d Couple Right Hands a-crofs, Left Hands back again — Crofs over two Couple, up again and cast off — Hands six round Right Hands and Left at Top.

On the Earthquake at Lisbon.

(*Causa latet; res est notissima.*)

O! Albion, if thy favour'd isle,
Long blest'd with peace and plenty's smile,
Don't cease from plays and sports;
Lisbon's sad fate may soon attend,
Commotions subterranean rend
Thy cities and thy courts.

The Locust on God's errand sent,
The cattle dying, bid REPENT,
All join'd the gen'rous lay;

Man, as if warn'd by none of these,
Convulsions now the ocean seize,
And bellowing earthquakes play.

While heaven protracts the fatal blow,
Nor lets this awful mandate go,
Repentance is no more:
Learn, learn its precious balm to prize,
Nor dare procrastinate, be wise,
Fall prostrate and adore.

A special warning London shar'd,
The bolt tho' grasp'd was kindly spar'd,
Amazing act of love:

The curtain of conspiring night,
Again admitted it to light,
To freedom joy and love.

Distinguish'd by thy favour'd lot,
O! let it never be forgot,
Improve the present hour;
Bid exil'd *piety* return,
From mourning o'er religious urn,
And waft her into power.

No more in calm and soft repose,
Let downy vice her eyelids close,
By fear or shame unaw'd:
Banish corruption from the great,
And rapine from a sinking State,
And mitred heads from fraud.

Not weakly vain, nor rashly blind,
The sacred scriptures let us mind,
And answer *Wisdom's* call:
Believe a God our feet can stay,
A Saviour intellectual day
Can pour alike on all.

No more let *vanity* and *pride*,
In *folly's* mazes seek to hide
From *truth's* pervading ray:
Let *conscience* *virtue's* track explore,
And *faith* and *reason* ply the oar
Unto the realms of Day.

Witney, Dec. 15.

E. W. jun.

*Translated from a very celebrated
French Epigram; by the Rev.
Mr. MOSES BROWNE, Vicar of
Olney, Bucks, Author of Sunday
Thoughts.*

Thy judgments, righteous God, are just:
Yet bears thy love with guilty dust!
— But me! such matchless Crimes debase,
Justice forbids to show me grace.

Yes — my black list of num'rous Stains
Leaves me no Choice — but penal Pains.
Thy attributes my bliss oppose,
Mercy itself decrees my woes.

'Tis just! — thy glory claims it all!
These very tears offensive fall.
I own thy vengeful rigours due —
Strike! with thy bolts, this miscreant thro'
Strike! — if thy sternly-partial eye
Can that, that single sin descry,
Which HE (who my whole Debt did pay)
Shed not his Blood to wash away.

*Epitaph on a Tomb in the Church-
yard of the above-named Place.*

Confide not, reader, in thy youth or strength,
But more than both the present moment
prize:

Graves here surround thee of each breadth
and length,
And thou may' st be (perhaps) the next that
dies.

*The Double Mistake: Or, CLOE
a-walking.*

To Miss ELIZ. M——R——M——N, of
Newbury, Berks.

Cloë by a River's mossy side,
Whose winding streams in murmurs
glide,

A pensile wood with verdure crown'd,
Projects a dancing shade around,
Venus quite tir'd, sat down to rest,
While vernal breezes cool her breast:
In a loose air, her tresses float,
And wanton loves around her sport.
All nature, blushing, eyes the queen,
And forms a wide extensive scene:
Tall alders bend their tow'ring head,
And, bowing, form a quiv'ring shade:
Satyrs with Dances beat the ground,
The tender lambkins skip around,
While longsters perch upon the spray,
And chant aloud their merry lay.
Cupid, who happen'd to be near,
Selecting flow'rs for Cloë's hair,
By the shrill concert in the sky,
Concluded her to be just by:
Replete with wishes warm he flies,
Fond hope and Fear alternate rise,
Alternate sparkle in his eyes,
And with his garland fresh and gay,
Tries a fair contrast to display.
The poppy, ting'd with scarlet hue:
The violet, fragrant as the dew:
The jessamine, the blushing rose,
From which ambrosial odour flows:
All these, and many more beside,
With a small silver string he ty'd;
Then to his breast his posy laid,
And smil'd, to think for whom 'twas made.
The little God with winged speed,
Now skims along the flow'ry mead:
But just before he reach'd the place,
A thought intruding, slack'd his pace,
Resolving, like a Grecian scout,
To spy what Cloë was about:
Then peeping thro' a sunny glade,
I see (he cry'd) the charming maid.
Ah, Cloë, do you think to lie,
Recluse in dull obscurity,
When prying *Cupid* is so nigh.
Streight hov'ring round her snowy breast,
What innocence is here exprest!
What life, he cry'd, plays in that eye!
E'en *Venus* cannot with her vie.
Venus, the vocal hills replies,
Can't with her vie: — with feign'd surprize,

The

The Goddess starts — so, so, who's here? —
 O, *Cupid*, is it you, my dear?
 I fear'd some bold traducer came,
 Or empty beau, to stain my fame.
 What, *Cupid*, quite chagrin'd? I pray,
 Has *Cloe* banish'd you to day?
 O! no mamma, — What then, my dear?
 I only thought you *Cloe* here. —
 Did you indeed? the queen reply'd,
 Is *Cupid*, when stil'd blind, bely'd:
 For do you think your nonpareil,
 Can charming *Venus* e'er excel?
 No, no — you may, I do declare,
 And full as a-propo compare,
 Lame *Vulcan* with *Adonis* fair:
 Fierce *Ajax* with his ample shield,
 To charming *Paris*, in the field;
 Or *Phæbus*, source and god of Light,
 To *Cynthia*, mistress of the night.
Cupid was going to reply,
 When fate, or chance brought *Cloe* by.
 Not *Phæbus*, when he spreads his beams,
 And dies the clouds in blushing streams,
 Not fair *Aurora*, when she greets
 The ravish'd sense with balmy sweets,
 Can vie with *Cloe*: or appear,
 So bright, so soft, or half so fair.
 Lightly she treads the russet Mead,
 The flowers, blushing, bow their head,
 And but in fancy's mirror view,
 Charms, as unfulfilled, as their hue.
 The lovely maid had scarce pass'd by,
 But *Venus* caught her with her eye,
 And turning unto *Cupid*, said,
 See there, who trips, with fairy speed.
 Along the wide extending mead:
Minerva, or *Diana* chaste,
 Go pay our best respects with haste.
Cupid obeyed: but soon return'd,
 (To vent his spleen his bosom burn'd)
 And whose blind now? the urchin cry'd:
 Indeed, mamma, you shou'd not chide,
 'Till conscious that yourself are free,
 From the same faults you find in me:
 'Tis lovely *Cloe*, blooming fair,
 The wise, the chaste, the debonaire,
 Wisdom and chastity combine,
 With love, to make her quite divine.
Daventry, Northamptonshire.
 Nov. 22, 1755.

The CONQUEST.

By a young Lady.

Palmer, with the warmth of love,
 Had all the pride of change;
 A settl'd flame, he wish'd to prove;
 Tho' none so prone to range.
 No lover felt a fiercer flame;
 Where beauty caught his eye;
 But marriage was a hateful name,
 A death to liberty.

It was (to him) when passion flows,
 His antidote to pain;
 It was the prickle of the rose,
 And of desire the bane.
 But love thro' him, at *Cloe's* sight,
 Like liquid lightning run;
Cloe, as fair as morning light,
 Or the meridian sun.
 Her eyes that shot a thousand rays,
 He fear'd not to admire;
 And scorch'd in the enkindling blaze,
 He yet ador'd their fire.
 Her lovely breast, divinely fair,
 With eagerness he saw;
 Unthinking, that, was hidden there
 All adoration's awe.
 As *Greenland's* ice, or *Russia's* snow,
 The summer's sun beams prove;
 He soften'd in the kindling glow,
 And melted into love.
 The ice of pride around his heart
 First yielded to the flame,
 Whilst love inselst his sharpest dart.
 And thaw'd the harder frame.
 Then thus, he said, "thy pow'r I prove"
 "O! beauty, thus pursu'd;"
 "Now take me to thyself, O! love,"
 "And pride be all subdu'd."
 Then *Hymen* wav'd his blazing torch,
 His net of wedlock threw,
 Attended to the temple's porch;
 And thence, triumphant flew.

AN ACROSTICK.

M ore fair than lillies in a summer's morn,
 I n august jasmin, or in may the thorn,
 S weeter than woodbines after gentle show-
 ers,
 S weeter than zephyrs breath'd thro' rosy
 bowers.
 H ibernia's daughters can no more excel,
 A british nymph is now the reigning bell,
 R eplete with sense, good-humour, wit
 refin'd,
 R efitless form! resistless to her mind!
 I n her improv'd, each lovely feature's seen,
 S agacious nature gave the paphian queen.
 O h, might I her (who all these charms)
 possess,
 N o tongue could speak, no words my joys
 express.

R. CH. WREN.

The VILLAGE.

By Mrs. P.

T O where the happy few reside,
 Remov'd from folly and from pride,
 From all the world calls great;
 Where midst the scenes of rural life,
 They live unknown to noise and strife,
 And bless their humble state.

Lead

Lead on : to yonders village lead,
Where heaven has happiness decreed,

For those ye blessings prize :
Who seek in solitary ease,
Such joys us innocently please,
Nor wish for other joys.

Then leave the busy bustling croud,
The giddy young, the gay, the proud,
Who all on pleasure wait :
Nor think yon little low built town,
Made for the cottager and clown,
There live the truly great.

There modest worth obscur'd, does lie,
Recluse, and hid from every eye,
Save that of smiling heav'n !

Contentment there in yonders cot,
Approves the happy humble lot,
That providence has giv'n.

There industry made hard by toil,
Pursues his labour with a smile,
Nor wastes an idle hour :
Employment and a mind at ease,
Are blessings sure that greatly please,
And these are in his power.

Here Prudence notable and sage,
So much despis'd in this vain age,
Has found a calm retreat :

Her little family affairs,
Conducts : with all a mother's cares,
Most fearful, yet discreet.

While temp'rance ever healthful swain,
To tend his flock on verdant plain,
Does constantly resorts :

His wary feet he turns aside,
From paths of luxury and pride,
To those which health support.

And innocence most charming maid,
In plain and neatest drefs array'd,
She needs no gay attire :
The power to wound is not in drefs,
'Tis native charms that yield access,
And set the soul on fire.

For open truth a shepherd's boy,
Has felt the passion, and with joy
Still sings it in the grove :
Impatient now he waits the day,
When innocence shall give away
Her hand to virtuous love.

But mark yon lofty rising dome,
That's charity's the parish home ;
Here lives a god-like mind :
Who all the wants of all the poor
Relieves, from an unbounded store,
Of goodness unconfin'd.

There piety divinely taught,
With every grace and virtue fraught,
Hangs loose to all below ;
Her greatest pleasures are on high,
They rise from springs beyond the sky,
Where joys celestial flow.

Thus have I sung the village train,
And Collin thanks me, honest swain :
Since he approves my lays,
Let others, better taught, refuse,
My humble verse, and humble muse,
The tribute of their praise.

M. P.

An Account of the late Earthquake at Lisbon, continued from Page 208.

In the Afternoon all the Passages were stopped by a Fire which broke out in several distant Parts at the same Time, and at Night the Ruins of the City were all in a Flame : This completed its Destruction and the Ruin of its surviving Inhabitants ; for in the Terror all Persons were in, no Attempt was made to stop it, and the Wind being very high, it was communicated from one Street to another, by the Flakes of Fire drove by the Winds : It raged with great Violence for 8 Days, and this in the principal and most thronged Parts of the City. People being fled into the Fields half naked, the Fire consumed all Sorts of Merchandize, Household-goods, and wearing Apparel, so that hardly any Thing is left to cover People's Nakedness ; the Court, the Populace of the City, Nuns, Friars, all lie in the Fields, where the Misery they suffer from Cold, Hunger and Rain, is not to be expressed. If the Fire had not happened, Peo-

ple would have recovered their Effects out of the Ruins, but this has made such a Scene of Desolation and Misery, as Words cannot describe. The King's Palaces in the City are totally destroyed. The Tobacco and other Warehouses shared the same Fate.

It is remarkable that this Fire continued burning so long, that on the 16th Day after it began, the Rubbish was so hot as to set Fire to the Baskets in which it was carried. It was at first imagined that these Fires broke out of the Earth ; but however probable this Supposition may appear, it does not seem to have been the Case here ; for the most authentic Letters represent it as kindled by the Fires lighted in the Houses, and the large Wax Tapers in the Churches burning among the Rubbish ; or as kindled by villainous Incendiaries.

What Money was saved out of the Fire was so blackened as to cause it to be specified whether Payments of any Sort were to be made

made in black or bright Money. The Iron Chests were the only Things that saved the ready Cash of many; as to Household Goods they were all consumed, and some Gentlemen were reduced to the Want of every Thing to keep them from the Weather, for most escaped in their Undress and Slippers.

What chiefly contributed to the Destruction of the City, was the Narrowness of the Streets. It is not to be expressed by human Tongue how dreadful and how awful it was to enter the City after the Fire was abated, and looking upwards one was struck with Terror in beholding frightful Pyramids of ruined Fronts, some inclining one Way, some another; then on the contrary, one was struck with Horror in beholding dead Bodies by six or seven in a Heap, crushed to Death, half buried and half burnt; and if one went through the broad Places or Squares, nothing to be met with but People bewailing their Misfortunes, wringing their Hands, and crying, the World is at an End; others who met with those they had any Concerns with embracing and begging Forgiveness of Injuries past. In short, the most lamentable Scene that Eyes could behold. If you go out of the City you behold nothing but Barracks or Tents made with Canvas or Ship's Sails, where the poor Inhabitants lye.

The King the 4th Day gave Orders for Soldiers to be posted at all the passable Avenues of the City, to hinder Persons robbing the deserted Houses, and Orders were given to suffer Masters of Houses to save what they could; and in going out every one was examined and strictly searched: Horse and Dragoons were posted on the Roads to stop any Body who seemed inclined to run away into the neighbouring Countries, particularly labouring Men and Artificers. Thieves were apprehended, who being found with Goods on them and no Body appearing to own them, were condemned and hung the next Day, for which Purpose Gallows were erected in the most conspicuous Parts of the City. Then the King applied to the Relief of his People by securing all the Corn, Flour and Rice, of which great Quantities were offered, particularly from the English; so that the Apprehensions of a Famine were soon dissipated, and Orders were given to set all the Mills at Work; new Butcheries were ordered to be opened, and Bullocks and Sheep sent from all Parts of the Kingdom. Ships were stopt till a strict Search was made, and the Captains sworn that they had received no Goods but what belonged to the Merchants or Owners.

All Provisions are now admitted Duty-free, even Fish, which before paid a high Duty.

As the Shocks, though small, are frequent, the People keep building Wooden Houses in the Fields, but the King has ordered that no Houses be built to the Westward of Alcantra-gate. The Court are busy in appointing a Custom-house, &c. for Goods inwards, that Trade may be re-established, but no Place is yet fixed, so that Ships inwards are lying still. Four English Sailors have been condemned for stealing Goods, and hiding them in the Ballast, with Intent to make a Property of them.

We shall here add the Accounts published by Authority.

From the London Gazette.

The following Letter has been received from Abraham Castres, Esq; His Majesty's Envoy Extraordinary to the King of Portugal.

SIR, Lisbon, Nov. 6, 1755.

YOU will, in all Likelihood, have heard before this, of the inexpressible Calamity befallen the whole Maritime Coast, and in particular this opulent City, now reduced to a Heap of Rubbish and Ruins, by a most tremendous Earthquake, on the 1st. of this Month, followed by a Conflagration, which has done ten Times more Mischief than the Earthquake itself. I gave a short Account of our Misfortune to Sir Benjamin Keene, by a Spaniard, who promised, as all Intercourse by Post was at a Stand, to carry my Letter as far as *Badajoz*, and see it safe put into the Post-House. It was merely to acquaint his Excellency, that, God be praised, my House stood out the Shocks, tho' greatly damaged; and that happening to be out of the Reach of the Flames, several of my Friends burnt out of their Houses, had taken Refuge with me, where I have accommodated them, as well as I could, under Tents in my large Garde; nobody but Lord *Charles Douglas*, who is actually on Board the Packet, besides our Chaplain, and myself, having dared hitherto to sleep in my House, since the Day of our Disaster. The Consul and his Family have been saved, and are all well in a Country House not far from this City. Those with me at present, are the Dutch Minister, his Lady, and their three Children, with seven or eight of their Servants. The rest of my Company, of the better Sort, consists of several Merchants of this Factory, who, for the most Part, have lost all they had; though some indeed, as Messrs *Bury*, and *Mellish's* House, and Mr. *Raymond*, and *Burrell's*, have had the good Fortune to save their Cash, either in Whale, or in Part. The Number of Dead and Wounded I can give no certain Account of as yet; in that Respect our poor Factory has escaped pretty well.

well, considering the Number of Houses we have here.

I have lost my good and worthy Friend the Spanish Ambassador, who was crushed under his Door, as he attempted to make his Escape into the Street. This, with the Anguish I have been in, for these five Days past, occasioned by the dismal Accounts brought to us every Instant, of the Accidents befalling to one or other of our Acquaintance among the Nobility, who, for the most Part, are quite undone, has greatly affected me; but, in particular, the miserable Objects among the lower Sort of His Majesty's Subjects, who all fly to me for Bread, and lie scattered up and down in my Garden, with their Wives and Children. I have helped them all hitherto, and shall continue to do so, as long as Provisions do not fail us, which I hope will not be the Case, by the good Orders M. de *Carvalho*, has issued in that Respect. One of our great Misfortunes is, that we have neither an *English* or *Dutch* Man of War in the Harbour. Some of their Carpenters and Sailors would have been of great Use to me on this Occasion, in helping to prop up my House; for as the Weather, which has hitherto been remarkably fair, seems to threaten us with heavy Rains, it will be impossible for the Refugees in my Garden to hold it out much longer; and how to find Rooms in my House for them all, I am at a Loss to devise, the Floors of most of them shaking under our Feet, and must consequently be two weak to bear any Number of fresh Inhabitants.

The Roads for the first Days having been impracticable, it was but Yesterday I had the Honour, in company with M. de la *Calmette*, of waiting upon the King of *Portugal*, and all the Royal Family, at *Belem*; whom we found encamped, none of the Royal Palaces being fit to harbour them. Though the Loss his most Faithful Majesty has sustained on this Occasion, is immense, and that his Capital City is utterly destroyed, he received us with more Serenity than we expected; and, among other Things, told us, that he owed great Thanks to Providence, for saving his and his Family's Lives; and that he was extremely glad to see us both safe. The Queen in her own Name, and all the young Princesses, sent us Word, that they were obliged to us for our Attention, but that, being under their Tents, and in a Dress not fit to appear in, they desired that, for the Present, we would excuse their admitting our Compliments in Person.

Most of the considerable Families in our Factory have already secured to themselves a Passage to England, by three or four of our London Traders, that are preparing for their

Departure. As soon as the Fatigue and great Trouble of Mind, I have endured for these first Days, are a little over, I shall be considering of some proper Method for sheltering the poorer Sort, either by hiring a Portuguese Hulk, or, if that is not to be had, some English Vessel, till they can be sent to *England*: And there are many who desire to remain, in hopes of finding, among the Ruins, some of the little Cash they may have left in their Habitations.

The best Orders have been given for preventing Rapine and Murders, frequent Instances of which, we have had within these three Days, there being Swarms of Spanish Deserters in Town, who take hold of this Opportunity of doing their Business. As I have large Sums deposited in my House, belonging to such of my Countrymen as have been happy enough to save some of their Cash, and that my House was surrounded all last Night with Russians, I have this Morning wrote to M. de *Carvalho* to desire a Guard, which I hope will not be refused.

We are to have, in a Day or two, a Meeting of our scattered Factory at my House, to consider of what is best to be done in our present wretched Circumstances. I am determined to stay within Call of the Distressed, as long as I can remain on Shore with the least Appearance of Security; and the same, Mr. *Hay* seemed resolved to do, the last Time I conferred with him about it.

I must humbly beg your Pardon, Sir, for the Disorder of this Letter, surrounded as I am by the many in Distress, who, from one Instant to the other, are applying to me, either for Advice or Shelter. The Packet has been detained, at the Desire of the Factory, till another appears from *England*, or some Man of War drops in here from the *Streights*. This will go by the first of several of our Merchant Ships bound to *England*. I must not forget to acquaint you, that Sir *Harry Frankland* and Lady are safe and well, and have the Honour to be,

Lisbon, Nov. 19. The Force of the Earthquake on the 1st Inst. seemed to be immediately under the City, and to have vented itself at the Key, that runs from the Custom-house towards the King's Palace, which is entirely carried away, and has totally disappeared. The India-house is also destroyed; but the Mint, in which there is a considerable Treasure, is standing.

The Number of the Dead is considerably less than was at first conjectured, and it does not appear that any of the Nobility are lost, except the Marchioness of *Lourival*, the Countess of *Lameiras*, and her Daughter, Lady *Anna de Moscoco*; and Don *Francisco de Noronha*, a Principal of the Patriarchal Church,

Church, and Brother to the Marquis of *Angreja*: The Dead have been interred, the Fires are extinguished, and, by the provident Measures the King has taken, the People are supplied with Plenty of Provisions. Their Most Faithful Majesties and the Royal Family continue in perfect Health. — So far the Gazette.

By all our private Letters we learn, that the *English* have been remarkably indebted to divine Providence for their Preservation, there being, according to the largest Computation, not above 12 or 14 who have perished, tho' the Number of *English* settled at *Lisbon* amounted to between 4 and 500; but by the smallest Computation the Number of the *Portuguese* who perished in *Lisbon* amount to 40,000.

Letters dated the 11th observe, that they had still one or two Earthquakes every 24 Hours. That the King seems resolved to rebuild *Lisbon* in the same Place, and that the Militia around the Country, are employed in clearing the Streets.

But it is Time to turn our Eyes from the Desolation of *Lisbon*, which no Pen is able to describe, and which we shall perhaps have further Occasion to mention, to the dreadful Effects produced by this Earthquake in other Parts of *Portugal* and in *Spain*.

The Master of a *Dutch* Ship, who departed from *St. Ubes* the 1st of *November*, at eight in the Morning, reports, that a Quarter before ten, being about a League and an half from *Mont Sizembro*, which is six or seven Leagues distant from *St. Ubes*, he felt a violent Shock in his Vessel; at the same Time he saw several large Rocks breaking off from the Mountain, and rolling down into the Sea with a most frightful Noise. Immediately after their Fall, a very thick Fog arose. He felt several other Shocks in his Ship till Sun-set, and then he perceived, at the Distance of seven or eight Leagues E. N. E. a thick Smoke, and soon after a Fire, which was visible the whole Night. As he bore away in the Morning from the Coast, the Fire was no longer discernable to him. At his Departure from *St. Ubes*, he left in the Road of that Port three *Dutch* Vessels, and a *Russian* Ship.

By later Advice the Public has been informed that *St. Ubes*, and all its Inhabitants, perished in one common Ruin; that all were swallowed up, and not the least Vestige of a City left, or one Person to lament the Loss of his Kindred and his Friends. — This City was situated in the Province of *Esremadura*, 21 Miles South of *Lisbon* on a fine Bay of the *Atlantic* Ocean. Here were made great Quantities of fine Salt, which

was purchased by most of the northern Nations of *Europe*, to sell in their *American* Plantations. It has been, for about 200 Years, one of the most considerable Towns of *Portugal*. It was enclosed with a strong Wall, fortified on the Land Side by five Bastions and two Demi-bastions, besides a little Fort on a rising Ground within a Mile of the Town. Towards the Sea it had a Fort of four Bastions, and a Tower well furnished with Cannon: All which Works are destroyed. The Chain of Rocks at the West Side of the Town, which contained Quarries of fine Jasper of various Colours, have also been split and rent by the Violence of the Earthquake.

At *Faro*, a Sea Port Town in the Province of *Algarva*, the whole City was destroyed, and all the Inhabitants that were left alive, like those of *Lisbon*, were obliged to live in the open Fields; and it is said, that all the Towns along the Coast, from Cape *St. Vincent* to the River *Ayamonte* have suffered nearly the same Fate, and that there is not a City in *Portugal* that has not, in some Measure, felt its Effects. By the same Earthquake the principal Mountains of *Portugal* were violently shaken, some of them split and rent, and huge Masses rolled down into the adjacent Valleys. And at the same Time all the principal Rivers swelled and overflowed the Countries thro' which they passed, and the Waters of the *Tagus* rose at *Toledo*, 100 Leagues from *Lisbon*, to the Height of 10 Feet. At *Oporto* several Houses were thrown down, and the Churches and Steeples much damaged.

According to Letters from *Angoulesme*, a City in the South of *France*, on the very same Day the great Earthquake happened at *Lisbon*, a subterraneous Noise like Thunder, was heard a League from that City; soon after the Earth opened, and discharged a Torrent of Water mixed with red Sand. Most of the Springs in that Neighbourhood sunk in such a Manner, that for some Time it was thought they were dry; and the *Charante* about the same Time first sunk considerably, and soon after mounted up in a terrible Manner.

These Earthquakes were also felt at *Madrid*; but in no Part of *Spain*, were their Effects more dreadful than at *Seville* and *Cadiz*, at the first of which Places it has done great Damage, all the Churches being in a Manner ruined; and the Tower of the great Church opening on the four Sides, a great many large Stones fell, and killed a great Number of People. A Letter from *Cadiz* observes, that, "It is impossible to express the Afflictions that all in that City have suffered." After describ-

ing the Earthquake, which was very violent, he proceeds: "An Hour afterwards, the Sea was Calm, not a Breath of Air, but prodigious close and warm; on a Sudden the Sea swelled up (without the least Wind) all round the City; we expected every Moment to be drowned, all ran into the Streets, seeking for Confession and Mercy: The Sea with the greatest Violence broke upwards of eighty Yards in length of the Walls, from the *Caletta* to near the Castle, and soon overflow'd all the Streets thereabouts, called the *Vina*, carrying along with it huge Pieces of the Wall: And on the other Side of the Mole, at the same Time, and with like violence the Waters entered at the Port *Sevilla*, and the Mole and Sea-port, sweeping away all before them. We then had not the least Hope of Life; the People ran to the higher Grounds: The Friars of all the Convents in the Streets giving Benedictions to the People all in Tears, expecting instant Death: A great many ran out at the Land-Gate to escape to the Island; but, poor Creatures! The two Seas met with equal Violence as in the City, and when they would gladly have turned back, found it too late, they were all drowned, Men, Women, and Children. This most terrible Scene lasted about two Hours, when the Sea began to ebb,

"At the same Time the like Misfortune happened in the Island, in *Cibiclan*, *Medina*, *Port-real*, *Cheres*, and in *St. Lucar*, were the Sea entered the lower Part of the Town, and overflowed it all; a great many were drown'd, and many Estates are lost."

"About ten Minutes after ten the same Morning it was felt at *Gibraltar*, when it began with a Trembling, which lasted about half a Minute, then a violent Shock, after that a Trembling for 5 or 6 Seconds, then another Shock, not so violent as the first, and went off gradually. The Guns

"on the Batteries were seen some to rise, others to sink; the Earth having and undulating Motion. Most People were seized with giddiness and sickness; some fell down, others were stupified; and in general all were affected as if electrified. The Sea rose six Feet eight Inches every fifteen Minutes, and fell so low, that Boats and all the small Craft near the Shore were left a-ground, as were Numbers of small Fish. This Flux and Reflux lasted till next Morning, having decreased gradually from two in the Afternoon. It is observable that a large Piece of Rock 40 Foot long separated from the Hill and fell down near *Cadiz* Bay. The Thermometer was at 62, and no alteration was observ'd. At *St. Roque* it was so violent as to throw Persons out of their Seats, and the Arch of the Church is rent. At *Algezaiß* several Walls fell down, and great Part of the Town was overflowed. At *Arzilla* in *Barbary*, the Water rose nine Feet, and a Settee of the Town founder'd. Great Mischief at *Cadiz*; their great Causey is torn up. The Ships in the Bay, thought they had struck upon Rocks; and the Dutch Fleet off *Cape St. Mary's* fired Guns as in Distress: It lasted with them seven Minutes. The Shocks were repeated on the 3d, 4th, 5th, 6th, 17th, and 18th."

"At *Tangier* the Water rose fifty Feet perpendicular, and had almost lost its brackish Taste. The Fountains stop'd for some Time, and soon after gush'd out with great Violence with Water the Colour of Blood. *Mequinez* in *Barbary* has suffer'd much, many People being killed, and near it two large Mountains opened, from one of which issued a prodigious Quantity of Water, the Colour too of Blood, which form'd a River, and many Days after was flowing with great Rapidity."

WE receiv'd the Favour of a Letter from the *Præses* of a *Loyal Club* in *North-Britain*, who desire it may be inserted in the Magazine; we beg to be excused inserting the first Part, as it contains so many Eulogiums on our Performance: But we greatly approve, and are much obliged by their impartial Censure of those Things they think amiss; and particularly the *Trap-Door Ode*, which was put in unknown to the Author of the Magazine, who was at that Time necessarily absent from the Press; but our Readers may depend on more Care being taken for the Future in this Respect; we shall give the Part of their Letter, containing their Reflections on this Ode, and what follows, in their own Words.

"Had the Author added to it's Titles, the Performance of a Master or Miss of 12 Years of Age, we could have laugh'd at the childish Fancy; but as this is omitted it gave us great disgust: If the Author had any design at all, we are at a Loss whether He, or She design'd to burlesque the Poet or his Majesty: We don't pretend to be such Judges of Poetry as to say whether Mr. *Cibber* perform'd his Part suitable to the Grandeur of the Subject; but we well know such a Theme deserves the Pen of a *Cicero* and *Virgil*; our own Country will pardon us; that among so many great Orators and Poets as it has produced, we don't single them out for the Employment, lest we injure many by picking out one or two: We are not so severe and

and morose as to quarrel with People for trifling now and then; it is sometimes a Relief from more serious Studies, but then we would never allow them to have any allusion to things Sacred or Serious; this has a very bad Effect on weak Minds, and to support our Judgment in this we refer to the great Judge *Hale*; and so far are we convinced of this, that as we are no Biggots to any Sect, we are resolved never to turn into ridicule the Weakness and Follies which are introduced into religious Worship by any Sect; where ever God is worshiped, if we are present, we will behave with due Reverence whatever be the Weakness and Superstition of the Worshipers, and don't doubt but that if they be virtuous and sincere, their Worship will be accepted by that great Being who knows the Infirmities of poor Mortals."

"And next to our God, we owe our greatest Reverence to our King, and now in a particular Manner when his Person and Government are doubly endeared to us, by our Dangers and his Toil; when we see his Majesty at a Time of Life when Nature usually calls for Ease, supporting the Fatigues and Care of Government, watchful for our good, whilst his meanest Subject sleeps at Ease and eats his homely Meat in Peace, confiding next to God, in the Care and Providence of his King! Words are faint to express his

Merit or our Gratitude; nor does his Majesty expect Reward of his Labours in these, but in being the happy Instrument of Safety to his Dominions, and to promote the good of Mankind; for we see his beneficent Actions and Intentions are not confin'd to his own Subjects. Let every good Person, Men, Women, and Children, join us in imploring the Almighty to bless his Majesty with Vigour of Body and Mind to support his Toils; to bless his Councils, his Navies and Armies with Success; may he live to see his Enemies defeated, his Dominions settled in Peace. His Grandson arrived at maturity possess'd of all his own Virtues, ready to succeed him; may he then by an easy Transition, be translated from a mortal to an immortal Crown."

"We expect you'll do us the Honour to insert this in your next Magazine; our Intention is good, tho' it is written in a Hurry; we never once entertain'd a Thought of committing any of our Performances to Print; but our Reverence, Love and Gratitude to his Majesty, we think, call for this Testimony of our Aversion to any thing that has the least Appearance of Disrespect to his sacred Person. You would have had this on the first Appearance of your *August* Magazine, but such is our Distance from *London*, we did not receive it till very lately. I am, yours, &c.

A CHRONOLOGICAL MEMOIR of Occurrences. For DECEMBER 1755.

THEY write from Paris what will hardly be believed; that a foreign Physician has lately cured a Boy who had been for six Years in a very strange Condition, and who voided by Stool a Serpent half a Yard long, with a flat Head, in the Jaws of which were eight Teeth, with a Kind of Horn on the

Top of his Head: This Monster was about an Inch in Thickness. The Prince of Conti having taken all the necessary Precautions to be ascertained as to this Fact, has taken the Physician under his Protection and into his Service.

L O N D O N.

Dec. 18. Captain Hamilton, of his Majesty's Ship *Lancaster*, lying at Spithead, coming ashore in his Barge, in which were 3 Men besides the Captain (the Sea running very high about two Parts in three of their Way from Spithead, and by the carelessness, it is said; of some of the People) they were overfet, and the Captain unfortunately drowned, with three of the Men; the Weather at that time being so bad that there was not a Boat of any Sort stirring near them. But as soon as possible Boats put out to their Relief, and took up five of the Men, who it seems supported themselves by holding on some Part of the Barge 'till help came, but too late to save

the unhappy Gentleman, tho' he had got twice on the Barge (which lay at that time Keel uppermost) but the Sea washed him off. When the Barge overfet, the Captain had on a large Cloak, from which he with difficulty disengaged himself, and swam about the Barge above twenty Minutes, exhorting the Men to resignation in case they could not save themselves, and at the same Time encouraging them to exert their Strength to preserve Life. In this Part of the World (and indeed I believe every where else, when the fatal Accident is known) Capt. Hamilton will be greatly lamented by all who had the Pleasure of knowing him, as he was a Gentleman who possessed every qualification that

that might render Himself, his Friends, and the People he commanded Happy.

"P. S. The Body of one of the Men has been since cast ashore; but as it was Tide of Ebb when the Accident happen'd, it is a Chance if any of the Rest are found as yet."

23. His Majesty's Proclamation for the Encouragement of Seamen, prolonged and extended to the 31st of January next.

24. The Right Hon. the Lord Mayor, attended by his Officers, went into the Markets to make a Collection for the poor Debtors, who are confined in the several Gaols belonging to this City.

25. There was a numerous and splendid

Appearance of Nobility, &c. at Court, to pay their Compliments to his Majesty; and the Knights Companions of the Most Noble Orders of the Garter, Thistle, and Bath, appeared in the Collars of their respective Orders. At Noon his Majesty and the Royal Family, preceded by the Heralds and Pursuivants at Arms, went to the Chapel-Royal; and, after receiving the Holy Communion, his Majesty made an Offering at the Alter of a Wedge of Gold, called the Byzant.

From Norwich we hear, that there has been born 1241, and buried 1341, in the Year 1755.

A Register of THEATRICAL ENTERTAINMENTS.

Drury-Lane.

- Dec. 26. *King Henry VIII.*—Genii.
27. *Fair Quaker of Deal.*—Genii.
29. *Oroonoko.*—Genii.
30. *The Alchemist.*—Oracle.
31. *Barbareffa.*

Covent-Garden.

- Macbeth.*—*Harlequin Skeleton.*
Romeo and Juliet.—Ditto.
Ditto.—Ditto.
Ditto.—Ditto.
Merry Wives of Windsor.—*Double Disappointment.*

BIRTH.

Dec. 28. Lady of the Hon. Rich. Fitzpatrick, Esq; delivered of a Son, at his House in Hanover Square.

MARRIAGES.

Dec. 26. Lord Crauford was married at Edinburgh, to Miss Hamilton.

28. The Hon. Mr. Spencer, to Miss Poyntz.

29. Capt. Barlow in the West-India Trade, to Miss Ann Brevin.

31. Edw. Atkins, Esq; of Austin Fryers to Miss Wright of Oxford.

DEATHS.

Last Week died Admiral Graves, of Thanks in Cornwall, between 70 and 80 Years of Age. He was much beloved by the Seamen, having been often in Action, and always behaved well. At the taking of Gibraltar he was the first Officer who got over the Walls, and was a Lieutenant of the Ranelagh, of 80 Guns, second to Sir George Rooke, that engaged Admiral Thoulouse in the fight off Malaga. In the last War he began the Attack upon Carthagen, and was afterwards in the Marlborough, of 90 Guns, Commodore of the Blue Division of Admiral Matthews's Fleet.

29. Bisse Richards, Esq; Member of Parliament for Hindon in Wilts.

At Bath Lady Barbara North, Sister to the late Earl of Pembroke.

Civil and Military Preferments.

The King has been pleased to constitute and appoint the following Lord and Gentlemen to be Colonels of the Regiments of Foot

to be forthwith raised for his Majesty's Service.

James Abercrombie, Robert Napier, Hedworth Lambton, William Whitmore, John Campbell, Charles Perry, Esqrs. Lord Charles Manners, John Arabin, Robert Anstruther, and Charles Montagu, Esqrs.

Also to appoint Bennet Noel, Esq; to be Lieut. Col. to the Coldstream Regiment of Foot Guards.

Julius Caesar, Esq; First Major to the said Regiment, and likewise Capt. of a Company therein.

William A'court, Esq; Second Major to the said Regiment, and likewise Capt. of a Company therein.

John Lowrie, Esq; First Major to the Third Regiment of Foot Guards, and likewise to be Capt. of a Company therein.

Andrew Robinson, Esq; Second Major to the said Regiment, and likewise Capt. of a Company therein.

The King has been pleased to grant unto the Rt. Hon. Wills Hill, Earl of Hillsborough, the Office of Treasurer of his Majesty's Chamber, in the room of Richard Arundell, Esq;

Also to grant unto George Augustus Selwyn, Esq; the Office or Place of Paymaster of all his Majesty's Works, in the room of Denzil Onslow, Esq;

The King has been pleased, upon a Surrender made by John Cowper, D. D. of the Office of the Execution of the Laws and Statutes concerning Bankrupts; and the Writing, Engrossing, and passing by and under

under the Great Seal of Great Britain, of all Commissions, Writs of Superedeas Proceedendo, and other Writs and Things incident to the Execution of the said Office, to grant the said Office unto the said Dr. John Cowper and and John Yorke, of Lincoln's Inn in the County of Middlesex, Esq;

The King has been pleased, upon a Surrender made by John Yorke, of Lincoln's Inn in the County of Middlesex, Esq; of certain Letters Patent, whereby his Majesty granted unto him the said John Yorke, during his natural Life, the Office or Place of Chafewax in Chancery, to grant the said Office or Place of Chafewax in Chancery to Ashley Cowper, Esq;

The King has been pleased to order Letters Patent to be passed under the Great Seal of the Kingdom of Ireland, for granting unto the Rt. Hon. John Earl of Sandwich, the Rt. Hon. George Earl of Cholmondeley, and Welbore Ellis, Esq; the Office or Offices of Vice Treasurer and Receiver General and Paymaster General of all the Revenues, Profits, and Casualties whatsoever, that are or shall be due to his Majesty in the said Kingdom: As also the Office of Treasurer at War there.

Also to constitute and appoint Edward Lloyd, Esq; to be Secretary to his Majesty's Forces in North Britain, in the room of Thomas Sherwin, Esq;

His Majesty has been pleased to make the following Promotions to the new Regiments, viz.

<i>Lieutenant-Colonels.</i>	<i>Majors.</i>
<i>Major</i> J. Mompesson, <i>Capt.</i>	Debrifay,
Thomas Buck,	Furye,
Alex. Mackay,	Hugh Morgan,
Geo. Crawford,	Wm Arnott,
Mark Benton,	Wilkinson,
J. Donaldson,	Proby,
Peter Parr,	Doynce,
T. Wilkinson,	Townsend,
Eyam Crump,	Feyrac,
W. Aug. Pitt.	How.

The King has been pleased to appoint the following Gentlemen to be Officers in the Regiments hereafter mentioned:

Richard Shuckburgh, Esq; to be a Lieut. in the first Regiment of Foot Guards.
Cecil Forrester, Esq; to be a Lieut. Col. to the Regiment of Foot commanded by Major General Bockland.

Thomas Gordon, Esq; to be a Lieut.
And Charles Phillips, Gent. to be Ensign in the said Regiment.

Ruvigny De Cosne, Esq; to be Capt. of a Company in the Coldstream Regiment of Foot.

George Bodens, Esq; to be a Capt. Lieut. in the said Regiment.

Montagu Blomer, Esq; to be Capt. of a Company in the Third Regiment of Foot Guards.

John Scott, Esq; to be Capt. of a Company in the said Regiment.

Lord Adam Gordon, to be a Capt. Lieut. in the said Regiment.

George Moncrief, Esq; to be Lieut. Col. to the Regiment of Foot, commanded by Lieut. Gen. Anstruther.

David Erskine, Esq; to be Major to the said Regiment.

Robert Sloper, Esq; to be Major to the Regiment of Dragoons, commanded by Lieut. Gen. Sir John Mordaunt.

Henry Arthur Fellows, Gent. to be Cornet in the said Regiment.

John Barlow, Esq; to be Major of the Regiment of Foot, or the Buffs, commanded by Col. George Howard.

John Mackay, Esq; to be Major to the Regiment of Foot, commanded by Lord George Bentinck.

John Bell, Esq; to be Major to the Regiment of Foot, commanded by Lieut. Gen. Thomas Fowke.

Sir Robert Hamilton to be Major to the Royal Irish Regiment of Foot, commanded by Major General Folliott.

John Beckwith, Esq; to be Major to the Regiment of Foot, commanded by Col. Philip Honeywood.

Jordan Wren, Esq; to be Major to the Regiment of Foot commanded by Major General James Stuart.

James Robertson, Esq; to be Major to the Regiment of Foot, commanded by Col. Alexander Durour.

B—KR—TS.

Jan. 3. Benjamin Hooker, of Crediton, Devonshire, Apothecary.

6. John Burton, of St. Paul, Shadwell, Mariner.

Thomas Camm, of Abington, in Berks, Chapman.

Edward Beazley, of Bermondsey, Surry, Woolstapler.

Thomas Pritchard, of Bridgewater, Coal-merchant.

Richard Eaves, of Birmingham, Carrier.

Elizabeth Trinder, of Bath, Widow, Tavern-keeper.

MANY of our Correspondents desire an Explanation of the Nature of the several Instruments made use of in the Observations on the Weather: We shall always take the highest Pleasure in doing every thing that may be agreeable to them; but we presume the general Use of the BAROMETER, THERMOMETER, and HYGROMETER, is too well known to need any

any Account of it, 'till we come to give a particular Explication of each Instrument, and its Uses, in their proper Places, viz. when we come to *Pneumatics*, or the *Doctrine of the Air*, which will follow next to the present Dialogues on the *Planetary System*; and we hope our Readers will have Patience to take every Thing in its proper Place.

But as to the *PLUVIAMETER*, it may be necessary to give its Use here.

Suppose then, a square Funnel was made, and the Length of its Side 10 Inches; then, when placed in the open Air, it will receive all the Rain that falls on 10 Times 10, or 100 square Inches; and if the Rain so collected by the Funnel were to descend into a Tube of a square Form, and the Orifice just a square Inch, then if the Rain which falls, and descends into this Tube, stands just one Inch high, that Rain, if it fell on a Space equal to 100 square Inches, would be but

$\frac{1}{100}$ Part of an Inch high. For the same Reason, if the Water is 10 Inches high in the Tube, it would, if spread over 100 square Inches, stand $\frac{1}{10}$, that is $\frac{1}{10}$ of an Inch high; and if it rose 20 Inches in the Tube, the same Rain upon 100 square Inches would stand $\frac{2}{10}$ of an Inch high, and so on. Now our Instrument is such as is here described, so that the Numbers in the Table, which shew the Height of the Water in the Tube, shew at the same Time shew, what Height of Water would be produced by all the Rain that falls on that Day (were it not to sink into the Earth) upon 100 square Inches, or any other given Space; from whence the Quantity of Water falling in a given Time, on a given Space, may at any Time be precisely

known: And this Problem will easily be understood to be of very great Use in *Physics*; for which Reason it is much to be desired that more Instrument of this Kind were in Use, that so the Quantity of Rain falling in different Places might be known, and compared together.

Observat. on the Weather, at Temple Bar.

	Barometer.	Therm.	Pluviameter.	Hygrometer.
Dec 28	29 : 7	85	0 : 0	23
29	29 : 6	79	0 : 0	21 $\frac{1}{2}$
30	29 : 8	82	0 : 0	20 $\frac{1}{2}$
31	29 : 9	84	2 : 0	19

BILL of Mortality from Nov. 18. to Dec. 16.

Buried		Christened	
Males	432	Males	270
Females	422	Females	269
Under 2 years old		323	
Between 2 and 5	64	Buried,	
5 and 10	26	Within the walls	69
10 and 20	17	Without	203
20 and 30	62	Mid. and Surry	410
30 and 40	88	City & Sub. West.	172
40 and 50	90		
50 and 60	70		854
60 and 70	52		
70 and 80	47	Weekly Dec. 23.	443
80 and 90	14		30. 411
90 and 100	1		
100 and 109	0		854
			854

Catalogue of BOOKS, continued.

LOTTERIES and Raggs. A Ballad, 2s. *Walsh.*

Lucias and Celadon; or, a Dialogue on the Existence and Immortality of the Soul, 1s. 6d. *Cooper.*

Memoirs of the voluptuous Conduct of the Capuchin's in regard to the Fair Sex: By a Brother of the Order, from the *French*.

Memoirs of the Duke of Sully, Prime Minister of *Henry the Great*: Translated from the *French*, 3 Vol. 4to. 2l. 2s. *Millar.*

The Mirror. A poetical Essay. By Mr. *Arnold*, 1s. *Swan.*

New Naval History, in weekly Numbers, Folio, at 6d. each. *Scott.*

Ode sur la Mort, by the King of Prussia, 6d. *Wilson and Durham.*

L'Orphelin de la Chine. Tragedie; par *M. de Voltaire*. *Nourse.*

Portsmouth. A descriptive Poem. By *R. Maxwell*, 1s. *Owen.*

Sinful Christian condemned by his own Prayers; a Sermon on *Luke xix. 22*. By *W. Dodd*, 6d. *Waller.*

Sermons preached on various Occasions. By *John Owen*, D. D. never before published, 2s. *Buckland.*

Sermon preached at the Visitation of Dr. *Thackeray*, Archdeacon of *Surry*. By *J. Jones*, M. A. 6d. *Withers.*



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NUTT, (Mr.) tried at Guildhall, July for printing a Libel in the London Evening-post, and found guilty.

— Receiv'd the following sentence, November 28, to stand on the pillory at *Chairing-cross*, to be imprisoned for 2 years, to pay a fine of two hundred pounds, and to find bail for his good behaviour for 5 years; himself in a bond of a thousand pound, and his two sureties five hundred pound each.

— Stood on the pillory December the 5th, when Mr. Sheriff *Beckford* attended in person.

O.

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